RESILIENT SEMARANG

Moving Together Towards a Resilient Semarang

PIONEERED BY THE ROCKEFELLER FOUNDATION

100 RESILIENT CITIES

Semarang
variety of culture

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First edition, May 2016

Mayor of Semarang

HENDRAR PRIHADI

MAYOR'S LETTER

Alhamdulillah, I would like to extend my gratitude to God Almighty for the completion of Semarang City's Resilience Strategy Document as part of the 100 Resilient Cities initiative.

As a city, Semarang still faces a diverse range of issues. Tidal flooding and flash floods, sanitation and waste management, congestion, and unemployment, among others, are the issues the city currently dealt with. About five percent of the city's population living in poverty is considered to be the most vulnerable to these problems. Therefore, a special attention is needed to this group of people.

During this time, the Semarang city's government, together with all of the city elements, has tried to overcome these challenges, both through improved physical and non-physical infrastructures. The city has achieved and accomplished a lot, however, there is still much left to be done. For this matter, Semarang does not rule out the possibility to learn from other cities, either in the national or international levels. Further, Semarang's participation in the 100 Resilient Cities network is expected to strengthen every effort the city makes in tackling these issues.

There are 6 pillar strategies, 18 strategies, and 53 initiatives listed in this City Resilience Strategy Document. The strategy was formulated through an inclusive process involving many elements of the city. It is hoped that the document becomes one of the guidelines in implementing the concrete actions towards the resilient Semarang. These actions will not only be done by the agencies within the city government, but also by the entire community of Semarang. In addition, through a network built in the 100 Resilient Cities, it is also expected that there are opportunities to cooperate with other parties related to resources in order to build the city resilience, nationally and internationally.

A resilient city does not only mean as a city that can withstand the current challenges and adapt accordingly, but also as a city that can further develop better in the future. In this regard, all elements of the city have a significant role in creating the city resilience. Therefore, on this occasion I would like to invite all *'sedulur-sedulur'* –brothers and sisters-- in Semarang to move together towards a resilient Semarang, with the ultimate goal of realizing the welfare of the whole society. As for the future, I hope that with this City Resilience Strategy Document, Semarang, along with all its challenges, can become a more resilient city and develop into a modern and sustainable city.

President, 100 Resilient Cities, Initiated by the Rockefeller Foundation

MICHAEL BERKOWITZ

LETTER FROM 100 RESILIENT CITIES

Today, 100 Resilient Cities is proud to partner with the city of Semarang to release their Resilience Strategy: Moving together towards a Resilient Semarang. For over four centuries, Semarang has been the focal point of trade in Indonesia, and a destination for people from all different backgrounds in the region. It takes a bold and honest view of the wide variety of challenges and opportunities the city faces, and brings together both existing and new resilience building initiatives while honoring the diversity that is a key characteristic of Semarang. This strategy is the end result of a process that ensured participation from a broad range of stakeholders. This strategy truly reflects Semarang as a whole- thoughtful, inclusive, and diverse and if implemented that process, along with the initiatives herein, will make the city better able to survive the shocks and stresses the city faces.

We would like to thank Mayor Hendrar Prihadi for his continued partnership, and congratulate him on the release of this strategy. None of this could have happened without his strong commitment to support the resilience building efforts in Semarang, from the city's engagement in the Asian Cities Climate Change Resilience Network to the work we see before us today.

We must also commend the entire Semarang resilience team, including Chief Resilience Officer Purnomo Dwi, and Wiwiek Handayani, Deputy CRO. Their tireless efforts and analytical thinking to produce this exemplary plan is already inspiring people in cities all across the world. We expect the city will continue to be a leader in a global resilience movement that will revolutionize the way cities act, think, plan, and support their citizens.

This document has 18 strategies and 53 initiatives, each of which were constructed to provide multiple benefits, realistic timelines, and project owners and supporters. The fact that this document is so actionable is critical, because the need for resilience building has never been greater not only here in Asia but around the world. The challenges and pressures of climate change, urban density, social cohesion and overtaxed infrastructure will continue to confront cities and their leadership for the foreseeable future.

Going forward, we could not be more excited to continue working with Semarang to support the implementation of key initiatives and solutions for the city and its citizens. With an engaged city leadership and the passionate resilience team, I am confident that Semarang will continue to leverage a wide range of local stakeholders and global partners to begin implementing the projects detailed within the strategy. Please accept my warmest congratulations on behalf of the entire 100 Resilient Cities and Rockefeller Foundation teams. We are looking forward to continuing our strong partnership with Semarang to achieve our shared vision of building more resilient cities.

Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

We believe in building our capacity to better strengthen our city resilience.

EXECUTIVE SUMMARY

Semarang continues to transform. In the 6th century, the coastline of Semarang was in the Bergota area, about 4 km from the current coastline. The continuous sedimentation from upper area of Semarang expanded the coastline further, thus extending the inland area, which grew into a coastal city. Unfortunately, the current trend of sea-level increase presents future flooding risk to this area.

If Semarang's physical transformation is highly dynamic, so are the challenges that come with it. The city is experiencing urbanization. Its population and urban sprawl continue to grow, especially to the south and the east. Regional dynamics also increasingly play a critical role. Therefore, it is necessary for Semarang to continue to adapt.

Semarang must prepare to face these continuous changes and challenges. With support from 100 Resilient Cities (100RC) initiated by the Rockefeller Foundation, Semarang started the preparation of a city resilience strategy. 100RC has developed a comprehensive understanding of city resilience that is based on four dimensions, including (1) Health and Wellbeing, (2) Social and Economic Development, (3) Environment and Infrastructure and (4) Leadership and Strategy. All process is conducted in an inclusive manner to ensure ownership of the 100RC by various elements of city stakeholders.

MOVING TOGETHER TOWARDS A RESILIENT SEMARANG

The development of a city resilience strategy requires the participation of various city stakeholders, including government officials, academics, businesses, the youth and community representatives in managing the shocks and stresses in the city. The collaborative work between city stakeholders identified 53 detailed initiatives in achieving the shared vision of a “Resilient Semarang”.

We believe in building our capacity to better strengthen our city’s resilience. Any efforts on improving our resilience in facing increasing shocks and stresses need to be supported by excellent capacity. Building capacity to increase empowerment and productivity in the government, communities and institutions will become a key aspect in many of our initiatives.

These initiatives fall under six pillars:

1.SUSTAINABLE WATER AND ENERGY

The risk of water scarcity in Semarang is increasing due to the expected rise of future water demand, topographical challenges with hilly terrain and drought. PDAM (the city-owned water company) continues to improve water access in the city; however, their coverage is still limited. Another challenge is electricity distribution as blackouts occur frequently in the city.

Related to these challenges, Semarang identified that its water and energy consumption must be conducted sustainably. We believe this can be accomplished through a series of performance improvement actions of our water management systems by promoting innovations in water provision and fostering environmentally-friendly behaviors in the community.

Therefore, the provision of alternative water sources will be explored. These alternative sources include, among others, rainwater harvesting, upstream and watershed area conservation, desalination plant and advocacy to reduce the excessive groundwater use. Coordination with neighboring local authorities for water provision is encouraged as it is a regional issue. Relating to energy, the city plans to organize energy-saving campaign and green building campaign.

2. NEW ECONOMIC OPPORTUNITIES

The unemployment rate in the city of Semarang exceeds the average rate in Central Java and national level. One of the causes is labor market gap where employment level does not meet the high number of job seekers.

In the past, Semarang's industrial sector was dominant. However, trade and service sector gradually reduced the dominance of industrial activities. Semarang needs to creatively explore additional alternative economic resources to minimize the potential increase of unemployment. The rapid development of SMEs (Small Medium Enterprises) seems to have a potential capacity in becoming a future generator of economy and employment in Semarang. Market research will be conducted in parallel with the provision of SMEs' trainings.

Additionally, environmentally-friendly business innovations such as urban farming, waste recycle and ecotourism are potential and will be encouraged. Traditional markets should also be revitalized, not limited only to physical improvements, but also extended to the management and capacity of quality control. Furthermore, research cooperation between the government, private sector, universities and NGOs in identifying new strategic economic sector must be encouraged.

By creating economic climate that allows the emergence of new opportunities, we believe that it will answer the economic and unemployment challenge in Semarang. Furthermore, Semarang will be able to secure the welfare of its citizens.

3. READINESS FOR DISASTERS AND DISEASES

Semarang is at risk of flooding, landslide, and dengue fever outbreak. The disasters also have a vast element; they are connected to regional issues and spatial planning issues and they involve various stakeholders.

The public must have better knowledge of these risks so they can be better prepared.

Dissemination of information about the risk of disasters and diseases to communities must be improved. Also, the potential of applying the latest technology to reduce these risks will be explored.

While natural causes, such as precipitation increase, contribute to flooding, urban waste materials might also become the cause of flooding. Therefore, urban sanitation system in Semarang must be improved.

Communal collaborative work for disaster preparation by disaster preparedness groups are proven to be effective and will be encouraged to be replicated. However, disaster prevention must also be coordinated on a regional scale and consider the challenges in regional spatial planning.

The disasters and diseases pose a challenge in Semarang. The city must be ready to face this challenge to minimize the impacts. We plan to achieve this by taking several actions that are going to improve information sharing, innovation and collaboration in disaster and disease outbreak preparedness.

4. INTEGRATED MOBILITY

Traffic congestion in Semarang is inevitable due to the increase in private vehicles. Meanwhile, road expansion is very limited. The municipal government continued to improve the city transportation service with the provision of BRT (Bus Rapid Transit). However, the institutional capacity and management of BRT must be improved. More integrated, better quality and more affordable service will interest people more into switching to public transportation.

It can include, among others, the provision of school buses, improvement of pedestrian and bicycle path, expansion of BRT routes and improvement of bus stops. The network and traffic management of BRT and the traditional public transportation must also be improved in order to achieve a more efficient mobility network.

Despite transportation is a regional issue, there was only minimal regional coordination and this must be improved in the future. Furthermore, better connection to major economic nodes and tourism attractions can improve the overall connectivity and strengthen the productivity and activities of the citizens.

Better connectivity and institutional capacity of transport service has been identified as necessary. We plan to achieve this by taking several actions that are going to enhance the performance of mobility by improving the quality, quantity and the management system of public transportation, and also by promoting public transport to our community.

5. TRANSPARENT PUBLIC INFORMATION AND GOVERNANCE

The performance of Semarang development budget is still low, resulting to inefficient public services. Musrenbang (development planning forum), which serves as a participatory planning and budgeting platform, has been implemented, but it still has weaknesses, especially in its too rigid procedures and schedule. The performance of development planning and implementation can still be improved and realized by increasing the active role of participatory monitoring from communities.

Better access to the city's public information is required to improve the role of participatory monitoring by community members. Various city agencies also need to improve their data coordination and information integration. Not only that it will be beneficial for the community, integrated data will also support Semarang government in formulating effective policies with little or without overlap between government agencies.

Semarang identified that development program information must be made public transparently in order to improve the quality and performance of the program. We are optimist that we can achieve this by taking several actions under the strategy pillar of transparent public information and governance. These actions will enhance governance performance by improving participatory process and coordination system, and improve the public information system by providing integrated data

6. COMPETITIVE HUMAN RESOURCES

Low quality of human resources and skill gap among job seekers contribute to the lack of competitiveness in the labor force in Semarang. The proportion of elementary and junior high school graduates is quite significant, while the proportion of graduate and diploma qualification is still low. However, labor market has improved regionally and even internationally with the launch of the ASEAN Economic Community.

Therefore, higher qualifications of labor are required in order to prepare Semarang workforce in facing these dynamic changes. Future Semarang workforces must be equipped early with information regarding the future job market or provision of scholarships and career consultancy support.

Better cooperation between employers, academics and the government in Semarang is expected to reduce the gap in the labor market. Career information center that provides information about various career pathways and support job seekers to find the right employers and vice versa could be established.

We identified the need to connect citizen to new skills and knowledge. We believe we can fulfill the need by taking a series of actions which will increase the capacity of Semarang workforce by establishing information career centers and providing training, workshops and information about education.

NEXT STEPS

Semarang must continue and extend the goal in becoming the city with adequate security, effective mobility and high capacity to the inhabitants and stakeholders. This is supported by the city's participation in the 100RC network in which opportunities are open the city to collaborate with various cities and institutions on international scale, enhance our local knowledge and expertise in tackling urban challenges.

Semarang will become the first city in Indonesia to launch a Resilience Strategy. The launch is not the end but rather the beginning of the city in becoming more resilient. Participatory process during the CRS formulation must be maintained in the implementation phase.

Creating a resilient city is a collective work. Future urban challenges are real, and caused by and affected everyone. Ideas and initiatives included in this strategy are expected to inspire the municipal government, citizens, business sectors and every other element in Semarang to acknowledge these challenges and participate in achieving a resilient city.

Let's move together to build of Resilient Semarang!

GLOSARRY

ABCG	Academic – Business – Community - Government
ABT	*Air Bawah Tanah* /Ground Water
APBD	*Anggaran Pendapatan dan Belanja Daerah* / City Budget
ASEAN	Association of Southeast Asian Nations
Bapermasper KB	*Badan Pemberdayaan Masyarakat dan Keluarga Berencana* / City Agency for Community Empowerment and Family Planning
BBM	Oil-fuel
BBWS	*Balai Besar Wilayah Sungai*/ Regional River Agency under National Ministry of Public Works and Housing
BLU-UPTD	*Badan Layanan Umum-Unit Pelaksana Teknis Dinas* / Public Service Body-Agencies Technical Implementing Unit
BMKG	*Badan Meteorologi, Klimatologi dan Geofisika* / Agency for Meteorological, Climatological and Geophysics
BPBD	*Badan Penanggulangan Bencana Daerah*/ Disaster Preparedness Agency
BPJS	*Badan Penyelenggara Jaminan Sosial* / Social Security Agency
BPS	*Badan Pusat Statistik* / Statistic Bureau
BRT	Bus Rapid Transit
CSR	Corporate Social Responsibility
DAS	*Daerah Aliran Sungai* / Catchment Basin
DBD	*Demam Berdarah Dengue* / Dengue Hemorhagic Fever
FEDEP	Forum for Economic Development and Employment Promotion
FPRB	*Forum Pengurangan Risiko Bencana*/Disaster risk reduction forum
Gasurkes	*Petugas Surveilans Kesehatan* / Health surveillance officer

HDI	Indeks Human development index
Jumantik	*Juru Pemantau Jentik*/ Mosquito larva monitoring officer
Kedungsepur	The greater Semarang conurbation including surrounding authorities including Kendal, Demak, Ungaran, Semarang, Purwodadi
Kelurahan	Sub-district, consists of RWs
KSB	*Kelurahan Siaga Bencana*/Disaster preparedness group
MEA	*Masyarakat Ekonomi ASEAN*/ASEAN Economic Society
Organda	*Organisasi Angkutan Darat*/Land transportation organization
P3M	*Pusat Pengelolaan Pengaduan Masyarakat* / City Center for Citizen Reporting
PAD	*Pendapatan Asli Daerah*/City Own Source Revenue
PDAM	*Perusahan Daerah Air Minum* / City Water Company
PDRB	*Produk Domestik Regional Bruto* / Regional Gross Domestic Products
PLN	*Perusahaan Listrik Negara* / National Electricity Company
RPJMD	*Rencana Pembangunan Jangka Menengah Daerah*/ Regional Medium-Term Development Planning
RPJP	*Rencana Pembangunan Jangka Panjang*/Long- Term Development Planning
RW	*Rukun Warga* / Community unit
RWH	Rain Water Harvesting
SDM	*Sumber Daya Manusia* / Human resources
SILPA	*Sisa Lebih/Kurang Pembiayaan Anggaran* / Budget surplus/deficit
TPA	*Tempat Pembuangan Akhir*/Landfill
UMKM	*Usaha Mikro, Kecil, dan Menengah* / SME- Small Medium Enterprises
WWF	World Wide Fund for Nature

Resilient Semarang

Moving Together towards a Resilient Semarang

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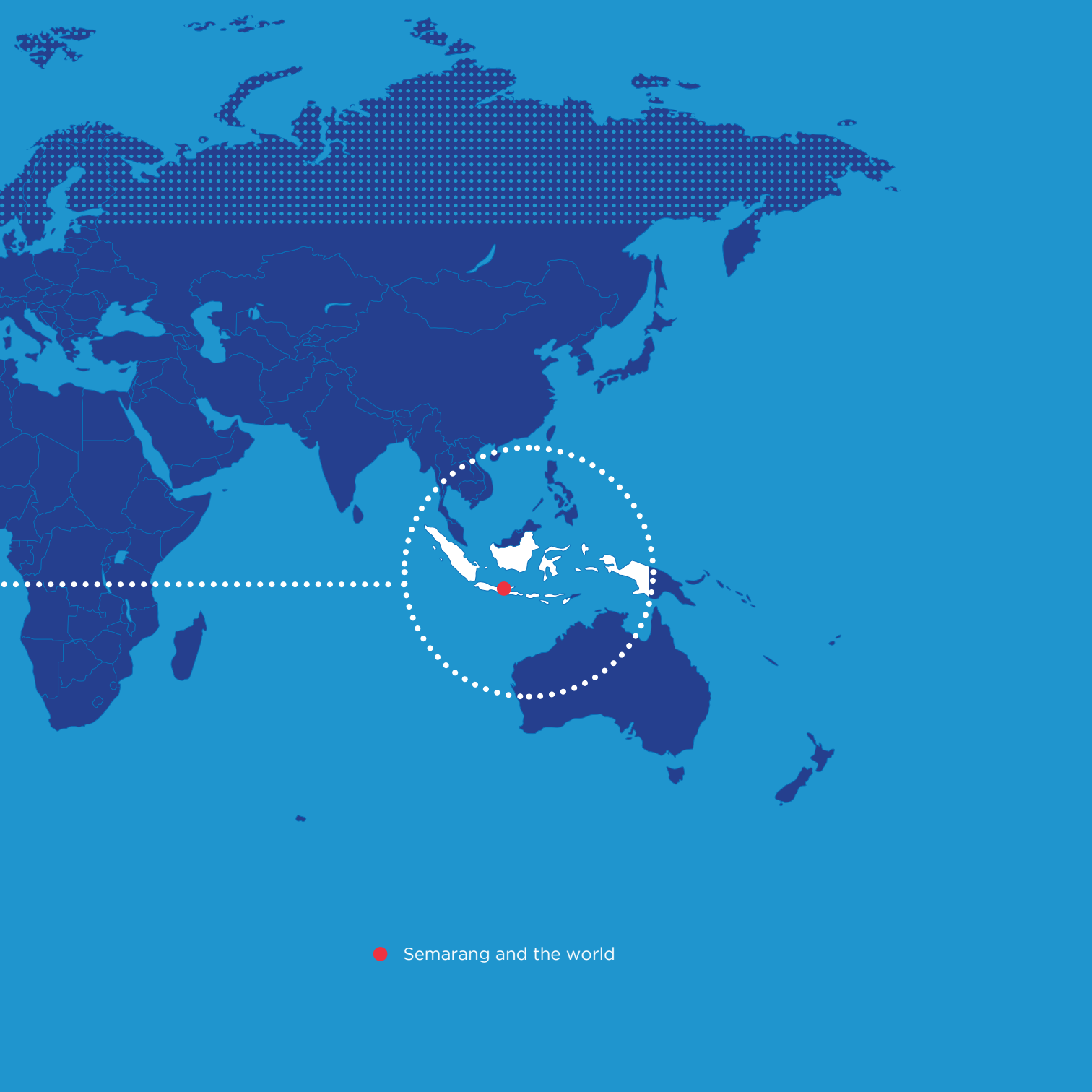
Semarang Location in Indonesia


Semarang and the world

WHY RESILIENT CITIES?

A resilient city is a city that continues to function in the face of various challenges and then able to recover, grow, and develop better. The people who live and work in a resilient city - particularly the poor and vulnerable - have the capacity to survive, adapt, and grow in spite of various shocks and stresses they must face.

Throughout the years, Semarang citizens have been building resilience in order to tackle challenges. For example, in managing tidal flooding, every year some coastal communities allocate their saving to increase the height of their houses. Tanjung Emas Port, located near these communities, built a higher new road to enable access during flooding, so that the port can still function when faced by shocks. The city authority also implemented innovative programs such as rain water harvesting, flood and dengue early warning system, mangrove reforestation and many more. In the process, we also invited multi-background stakeholders to give input, for example, by forming the Urban Development City Board, with members of experts from various backgrounds. However, with the increasing challenges in the future, there should be more things to be conducted.

Acute shock is a sudden and dangerous event that threatens the city. Example: earthquake, flash flood and disease outbreaks.

Chronic stress is a situation that weakens the daily or periodically functions of a city. Example: tidal flood, water scarcity.

Semarang is the first city in Indonesia participating in the 100RC network, along with 64 other selected cities around the world. The combination of challenges and issues faced by Semarang,opportunities to improve andi commitment to increase resilience have provided a solid ground for the city's participation in the 100RC work.

The 100RC organization was created by the Rockefeller Foundation and aims to help cities to be more resilient in the face of physical, social and economic shocks and stresses. Cities around the world are facing similar challenges especially with unprecedented global challenges, such as climate change. Therefore, Semarang participation in 100RC brings opportunities to combine our local context and expertise in facing various resilience challenges with shared lessons from international institutions and other cities in the 100RC network, supporting our efforts in improving Semarang resilience.

The 100RC started with the development of resilience strategy by applying the comprehensive "City Resilience Framework/CRF" approach. This approach is based on four important dimensions in the city system, which included

(1) health and wellbeing,
(2) economy and society,
(3) environment and infrastructure, and
(4) leadership and strategy.

The strategy development process also referred to the principles of resilience qualities, in order to design resilience in city systems, services, and institution:

1. The **inclusive** process emphasizes the need for wider consultation and the nature of 'mutual cooperation' to create a sense of belonging, as well as their shared vision in building city resilience. Inclusiveness targets all elements of society, including vulnerable groups, persons with disabilities and it is more gender responsive.

2. Individuals or institutions that **reflectively** apply their past experience and extensive knowledge have the ability to identify, prioritize and plan for future anticipations or constantly changing trends.

3. The **integrated** process can unify systems and institutions and enable cooperation to achieve greater goals.

4. The existence of **responsive** oversight, transparency and control system enables fast actions and precise handling in the event of shocks or pressure.

Picture 1
The Resilient City Framework

LEADERSHIP & STRATEGY
HEALTH & WELLBEING
INFRASTRUCTURE & ENVIRONMENT
ECONOMY & SOCIETY
FOSTERS LONG-TERM & INTEGRATED PLANNING
MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS

The CRF also covers 12 drivers that collectively assessing the city's strengths and weaknesses, and uncovering opportunities to address vulnerabilities.

5. A resilient city is **resourceful**, has sufficient resources also human resources who are competent to carry out the planned programs, have alternative and sufficient funding.

6. **Robust** designs, systems and assets are elements that are properly created, organized, and maintained that they are safe from damage in the face of shocks and can withstand pressure.

7. **Redundancy** refers to having capacity alternatives, substitution or diverse resources, providing the city with alternative strategies or other methods in the face of shocks and stresses.

ABOUT THIS DOCUMENT

The resilience strategy document is expected to function as an initial step in achieving resilient Semarang. City resilience strategy will help in creating benefits with minimum investment or even to increase investments in the city. Other than that, city resilience strategy can minimize the costs resulting from shocks and stresses and invite the community to actively participate in city development.

Semarang medium-term development planning cycle is every 5 years and is part of the 25 years long term development plan. The timing of Semarang resilience strategy development is in parrarel with the drafting of the 2016-2021 Semarang RPJMD (Medium-Term Development Plan). This makes the completion of city resilience strategy is in great momentum to better support the overall city development plan. The strategy and initiative in the Semarang City Resilience Strategy are expected to support and complement the programs in the RPJMD. The strategy also focuses on the directives of the 2005-2025 Semarang long-term development planning (RPJP), which include:

- Achieve cultured and quality community life
- Achieve a more reliable government to increase public service
- Achieve a dynamic and environmentally insightful metropolitan city
- Strengthen people's economy that is based on local excellence and build a conductive business climate.

This document can also be used as a proposal and investment tool of which can be proposed to obtain funding commitment unrelated to the government's budget. Participation in the 100RC enables Semarang to collaborate with international institutions and other cities in the 100RC network. The initiatives included in the city resilience strategy document can also be supported by the central or provincial government, or national or international donor and research institutions.

Community, businesspeople and various stakeholders in Semarang are actors who will be affected by the shocks and stresses in the city. The initiatives included in the document are expected to inspire these actors in realizing actions to face the urban challenges and taking part in building city resilience.

Therefore, the document is expected to be able to support collaboration between various stakeholders in Semarang, Indonesia and the international world.

STRATEGY DEVELOPMENT PROCESS

DEC 2014 DEC 2015 APR JULY

Semarang was selected

to become one of the first cities in *100 Resilient Cities* Organization.

Agenda Preparation Work

was aimed to prepare Semarang in executing the stages of 100RC.

Strategy Launch and Chief Resilience Officers (CRO) Appointment

Chief Resilience Officers in Semarang were a team of personnel from different backgrounds that included the municipal government, academics, and members of the community. They were chosen to safeguard the 100RC in Semarang

City context development

was signified by holding the first workshop, which invited different stakeholders. The workshop collected informations on the actual conditions of Semarang in order to determine priority shocks and stresses, and also perspective of stakeholders on Semarang resilient concept, the program's data collection and city assests

Stakeholder Engagement Plan

The diagram below explains the stages and milestones in the development of city resilience strategy in Semarang.

AUG SEP OCT 2016 FEB MAY

The Resilient Steering Commitee was established

The commitee aimed at providing guidelines and inputs for the implementation of 100RC. The city secretary was the advisor of the commitee and the commitee members include different elements of community.

Preliminiary Reselilience Assesment (PRA)

The launch of Preliminary Resilience Assesment included 3 themes, (Security, Mobility and Capacity) and 5 discovery areas (Basic needs, Employment, Disasters and diseases, Mobility and Capacity)

The Identification of Discovery Areas

5 city resilience working groups were established to safeguard the process of strategy formulation. The members of the work teams included the municipal government, provincial government, academics and members of the community in order to obtain a wide perspective. The work resulted in 56 city resilience strategy suggestions and 174 city resilience initiatives

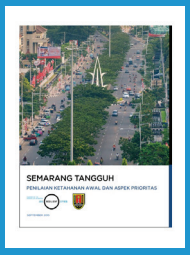
The identification of opportunities and priorities of city resilience strategy and initiatives

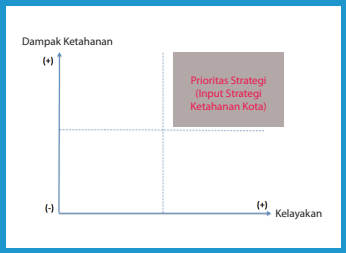
The cross focus working group consists of representatives from the other five discovery areas working groups. The team conducted study on interconnectedness of the themes and strategies that could be integrated. Priority strategy was the result of this stage, achieved through various methods. There were 18 city resilience strategies and 53 city resilience initiatives which were under 6 pillars of strategy

The City Resilience Strategy Launch

A comprehensive City Resilience Strategy is officially launched.

was executed during the formulation process of the city resilience strategy





STRATEGY DEVELOPMENT GOVERNANCE

The city resilience strategy development was coordinated by the CRO (Chief Resilience Officer) team. The team was supported by six working groups related to the analysis process of each priority aspect. In the process, the team found a number of inputs from various city stakeholders during a series of meetings and workshops.

During the development, the team had received guidance from the Resilience Steering Committee. The committee included the City Secretary, acting as the committee advisor; and the head of Semarang's BAPPEDA (Regional Development Planning Board), acting as the committee chairperson. The team was also supported by other urban decision makers, representatives of the business sector, academics, and community representatives. In terms of developing the substance, the team also consulted with the already established Urban Development Advisory Council whose members were made up of experts representing various fields in Semarang.

The strategy formulation was also supported by Mercy Corps Indonesia as the strategy partner.

PERLINDUNGAN
PERLINDUNGAN

VISION: RESILIENT SEMARANG

Semarang is paving its way to work together towards a great city. Through collaborative and inclusive efforts, we will become a much more resilient city with enhanced security, efficient mobility and excellent capacity and will embrace practicing resilience as a part of our culture.

Security: Establish an urban system in Semarang that meets basic needs, ensures socio-economic security and prepares for disaster emergencies and disease outbreaks

Mobility: Provide efficient accessibility and connectivity for improving the community's wellbeing

Capacity: Building the capacity of all stakeholders, increasing their productivity and capabilities in urban development

SHORT PROFILE OF SEMARANG

Semarang is the capital of Central Java Province and the fifth largest city in Indonesia. Semarang and 5 other neighboring regions form what is called the Kedungsepur Urban National Strategic Area, placing Semarang in a strategic position.

Semarang has international hubs located at Tanjung Mas Port and Ahmad Yani Airport, which also function as the main economic gate in Central Java.

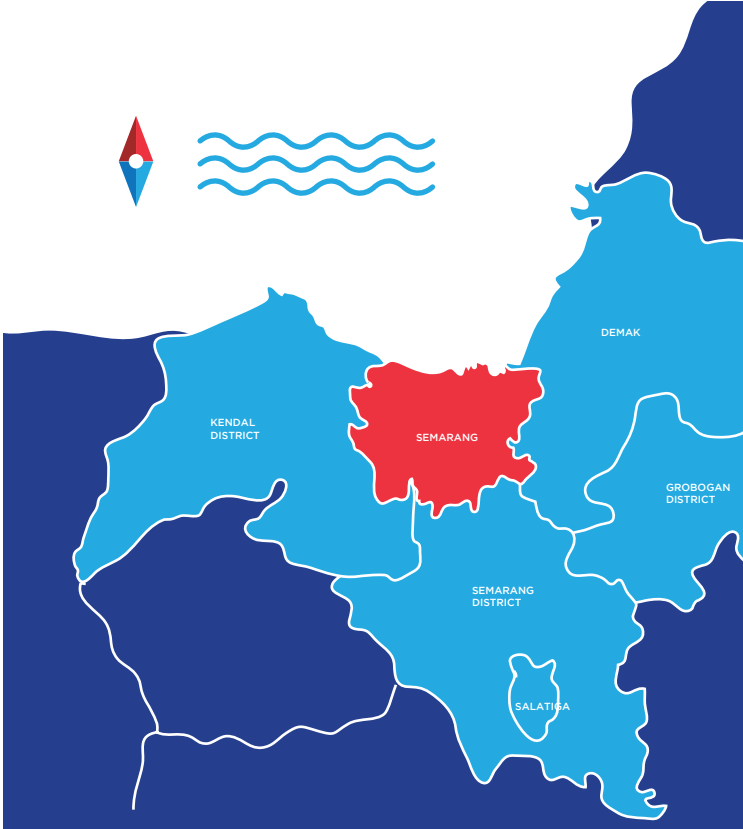
Semarang is adjacent to 3 districts, i.e. Kendal, Semarang and Demak. Semarang has 16 sub-districts and 177 *kelurahan*.

1.584.068 People

2014 Population Number

5,04 %

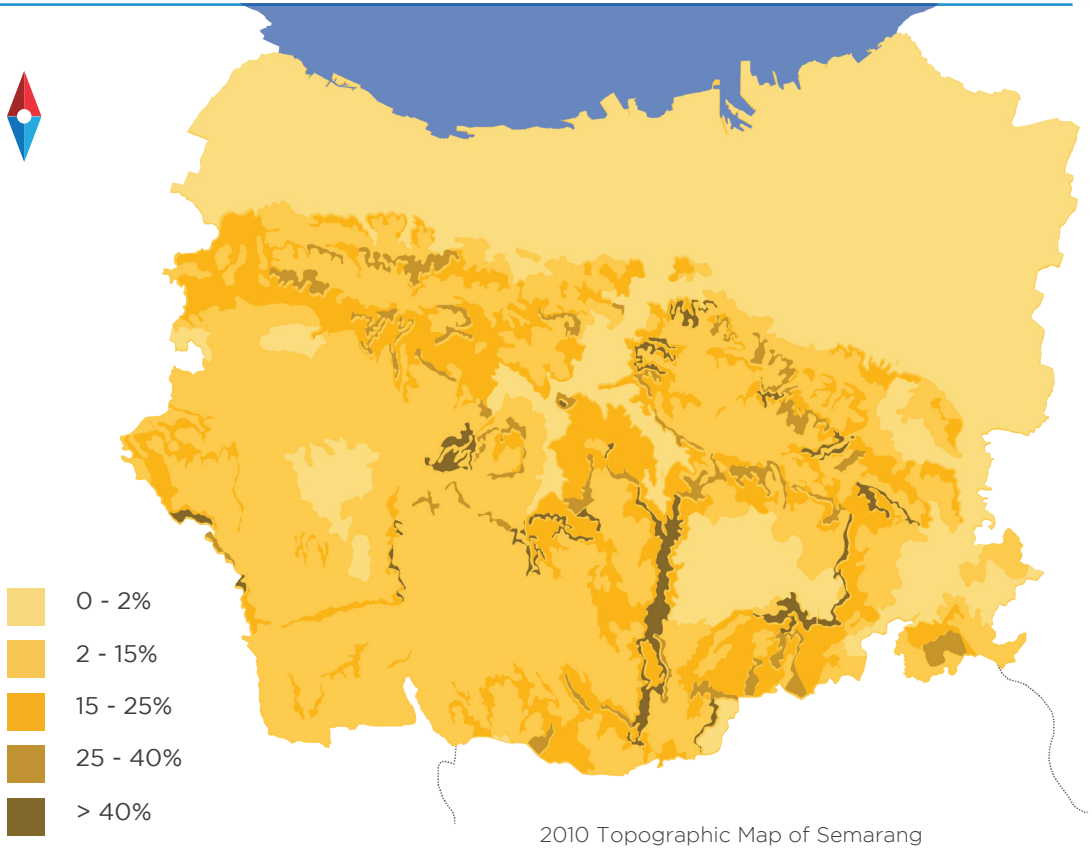
2014 Poor Community



Total Area	: 373.70 km2
Population Increase (2013)	: 0.83 % / year

Economic contributions to the Gross Regional Domestic Products/ PDRB (2014)

Agriculture	: 7.41 %
Mining and Minerals	: 8.37 %
Industry	: 12.17 %
Electricity, Gas, and Water	: 14.74 %
Building	: 10.87 %
Trade, Hotel, & Restaurant	: 13.58 %
Transportation & Communication	: 12.68 %
Financial and Corporate Service	: 13.16 %
Other services	: 11.8 %

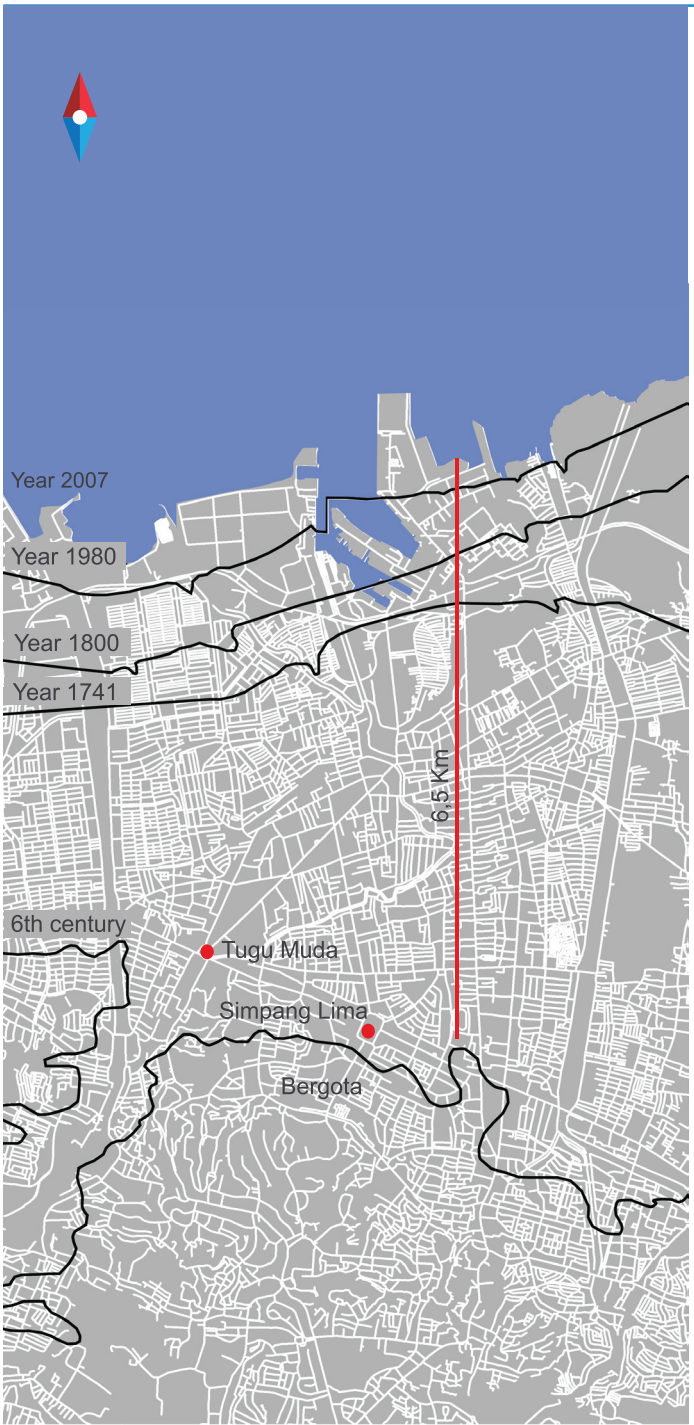


2010 Topographic Map of Semarang
Source: 2011-2031 Semarang RTRW

TOPOGRAPHY OF SEMARANG

Semarang has a varied topography. Although known more as a coastal city, hilly areas can also be found in Semarang. The lowland in the north region along the coast is known as Semarang bawah (lower). The old city's center and also the center of government and trade are located in this area.

Meanwhile, the hilly south region is known as Semarang atas (upper). Waduk Jatibarang (reservoir) is located here. The city development is increasingly moving to the upper region. This trend threatens the upstream area that functions as a conservation area.



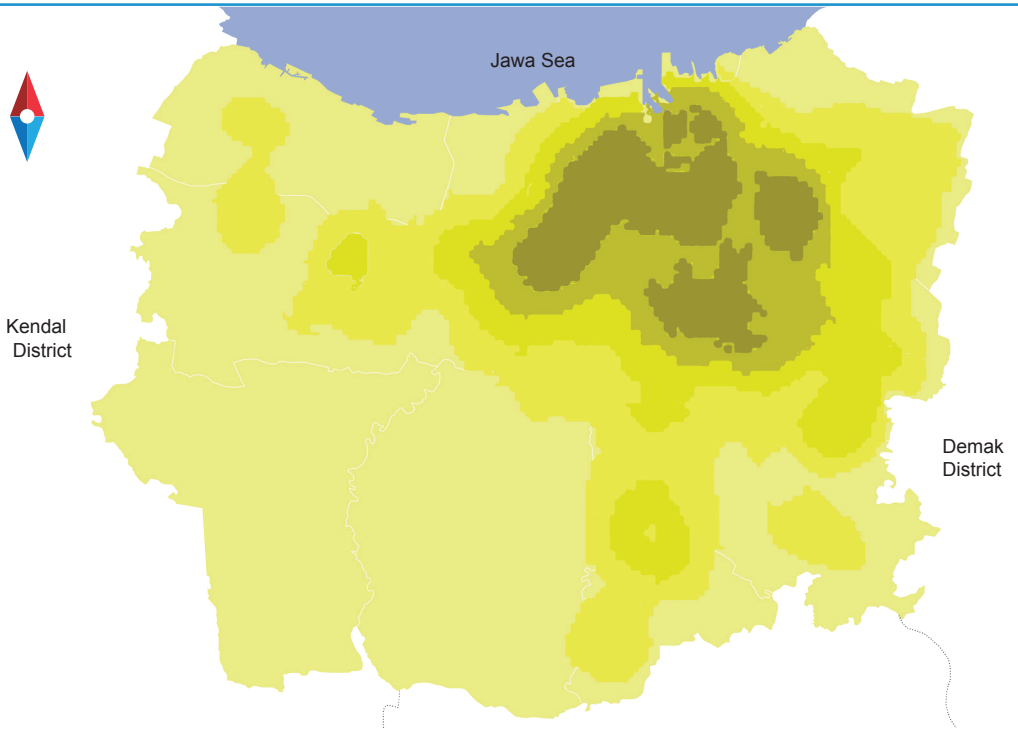
COASTLINE SHIFTING

In the 6th century, the coastline of Semarang was in Bergota area, not too far from *Simpang Lima* area (the current city center).

The sedimentation is coming from upper Semarang to the coastal area, shifting the coastline further to the Java Sea. Until 2007, the coastline has extended as far as 36,5km.

The current climate change affects coastal abrasion and reduces ground height on the new dry land as a result from sedimentation. Coastal abrasion causes the coastline to shift inland as far as 2.6 km (Wicaksono in Climate Week, 2015).

Semarang Coastline Shift Map
Source: Research and Development, SANITATION AND LANDSCAPING OFFICE, UNDIP, IPB, 2009



2013 Semarang Population Map
Source: Taken from different sources, 2016

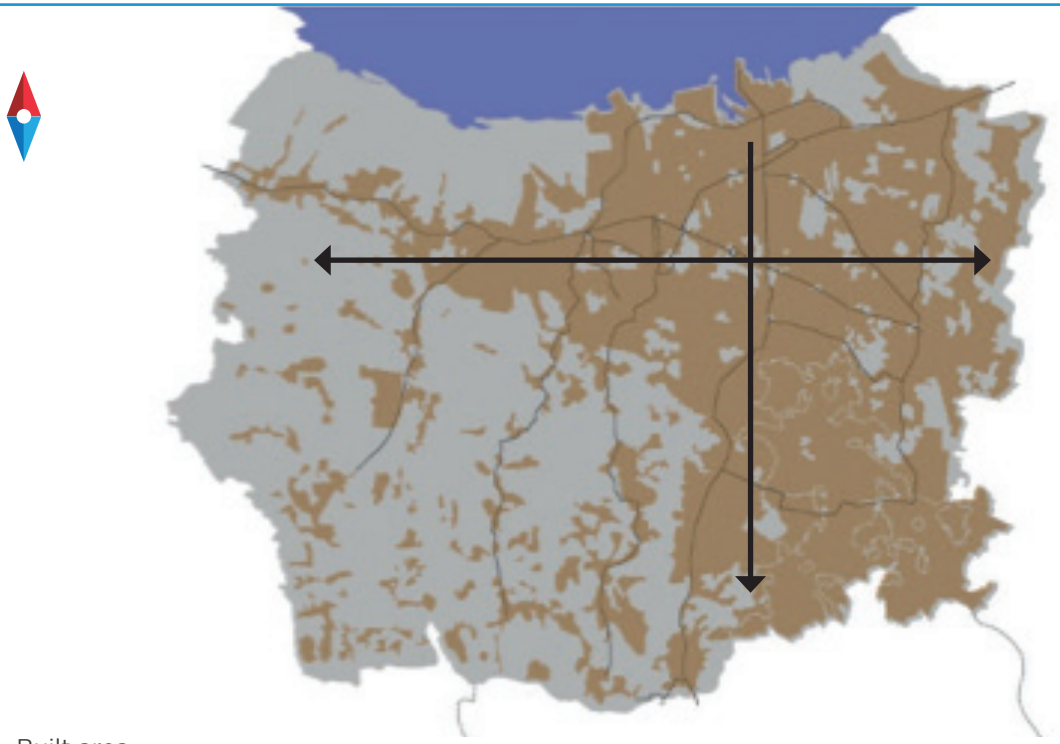
DEMOGRAPHIC, SOCIAL AND CULTURE

Population level :
4.241 jiwa/km2

Population level

- 0 - 2500 inhabitant /km2
- 2500 - 5000 inhabitant /km2
- 5000 - 7500 inhabitant /km2
- 7500 - 10000 inhabitant /km2
- > 10000 inhabitant /km2

Semarang is a multicultural city with various ethnicities inhabiting the city. The diverse culture has been evident for a long time, and the community lives harmoniously with each other. This is one of the strengths of Semarang community; social provocations do not really work and social conflicts are rare.



2010 Semarang Built-Up Area Map
Source: Taken from different sources, 2016

URBAN DEVELOPMENT

Semarang city began to develop in the coastal area. The Dutch also built here before Indonesia independence and now it is become the Old City area. However, lately the trend shifted physically and culturally. There have been urban sprawl in the city and the community now inhabits the suburban area, far from the coast.

People live in various *kampung* neighbourhoods. *Kampung* is high density urban settlement neighbourhood where residents build their own houses. Each *kampung* has strong identity and traditions such as communal work (gotong royong). While large part of Semarang is still *kampung*, the new development in suburban area shifts toward formal landed housing by developers.

SEMARANG RESILIENCE CHALLENGE

Semarang has a long history—approaching its 469th anniversary in 2016— and it continues to transform. The city of 1.5 million inhabitants is facing an economic transition from an industrially based economy to services and trade. Semarang's industrial area has moved to the outskirts of the city, thus creating changes. The labor force must respond to these changes with better preparation. Built up areas of Semarang and the surrounding areas grow rapidly in a sprawling pattern, which is not supported by the provision of adequate transport services and infrastructure.

Semarang deals with various physical challenges due to its geography as a coastal city, such as tidal flooding, erosion, land subsidence and rising sea levels, which threatens the lowlands of Semarang. Simultaneously, development in the hilly upper Semarang has led to a decrease of tree coverage in the upstream area, which severely increases vulnerability to landslides, water shortages and floods. Regarding health issues, as a tropical city Semarang is prone to outbreaks of dengue hemorrhagic fever (DHF).

These shocks and stresses present more continuous challenges for Semarang. These interrelated challenges, if left unaddressed, can lead to more problems and increase the severity of further shocks. Shocks and stresses can upset both the environment and the continuity of business service—and when the business sector is disrupted, residents lose their livelihood. The marginal and poor communities are most people that are most greatly affected by these issues.

Shocks and stresses in Semarang:

Flash flood from upstream areas

One of Indonesian cities with the highest incident rate of dengue fever outbreak

Limited provision of access that causes water scarcity

Tidal flooding on lower Semarang coast

Power outage

River pollution, affecting Semarang water sources

Excessive groundwater use and intensive development causing land subsidence

Higher unemployment rate compared to provincial and national level of unemployment

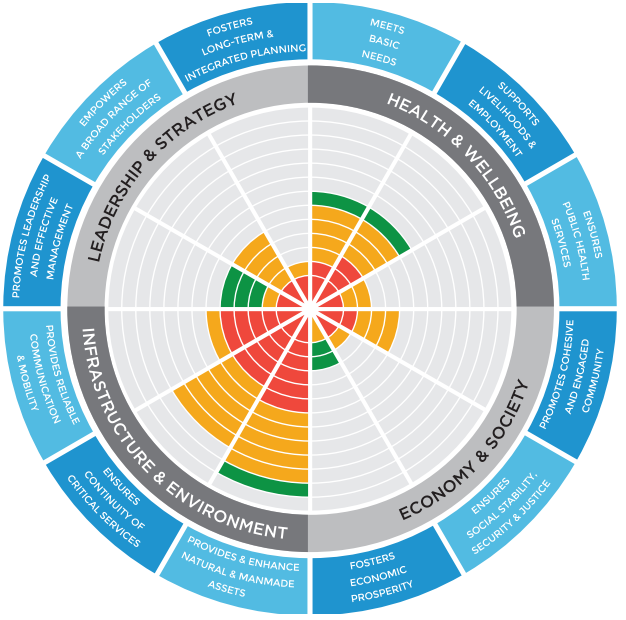
Landslides in upper Semarang and hilly areas

Coastal erosion threatens coastal areas.

More private vehicles, creating congestion

Related to the resilient status of Semarang and to complement the shock and stress assessment, 100RC also helped us to identify public perception of the city's performance of resilience. The assessment was conducted by holding workshops with participants from the government, the business sector, local universities, and communities. These participants were asked to mention and measure resilience-related factors in Semarang.

The results of the assessment showed that people were more concerned with certain dimensions of resilience, such as infrastructure and basic needs. This result was consistent with the assessment on shocks and stresses in Semarang. Factors related to infrastructure and basic needs were more frequently mentioned and considered most important. However, the performance of the city on both factors was considered weak, as seen in the following image. In the image, it can be seen that, for example, sanitation assets were reviewed as poor and must be upgraded.


LEADERSHIP & STRATEGY
HEALTH & WELLBEING
ECONOMY & SOCIETY
INFRASTRUCTURE & ENVIRONMENT
FOSTERS LONG-TERM & INTEGRATED PLANNING
MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS

In Semarang, issues related to infrastructure and environment are still viewed as the greatest challenge, followed by health and wellbeing.

Area of Strength

Good but can be improved

Must be improved

Picture 2. Semarang Resilience Perception Assessment

Challenges to the capacity of Semarang

Siloed planning and management

Poor public message, information and communication

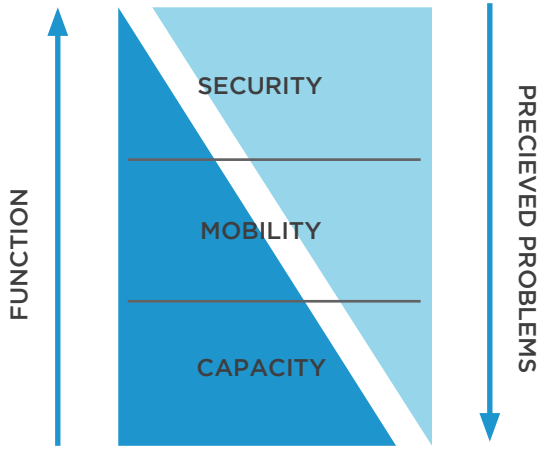
Low education level

Physical shocks and stresses are perceived as the main challenge in the city because they are easy to identify and people can directly relate to them. Yet, while intervention was conducted to tackle said shocks and stresses, the result of this intervention was not optimal, indicating that there were other weaknesses that were not being addressed.

There seemed to be less public attention to leadership, strategy, and socioeconomic dimensions, which was confirmed by the resilience assessment. Furthermore, a more thorough analysis found problems

related to siloed planning and management between the municipal agencies and provincial government, a lack of information dissemination to the public and low education levels, which are reflected in the limited capacity of the city.

This shows that the shocks and stresses, as well as the perception assessment, can easily recognize that there is much attention paid to the perceived problems of infrastructure, basic needs and congestion, while there is less attention paid to the issue of capacity. However, we believe that capacity serves an important function in improving our resilience. Any efforts on improving our resilience in facing increasing shocks and stresses needs to be supported with excellent capacity. Therefore, this city resilience strategy will put a lot of attention on building capacity, specifically on building capacity for the government, communities and institutions to increase empowerment and productivity. This holistic view of seeing the relationship of perceived problems and function is reflected in the following graph.



Picture 3 A holistic look at challenges to resilient Semarang
Source: Semarang 100RC Team, 2015

SECURITY

RELATED SHOCKS AND STRESSES

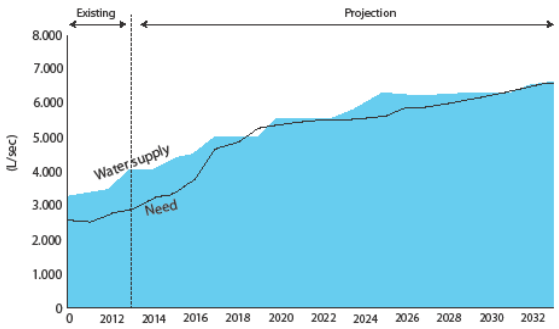
Tidal floods, DHF outbreaks, landslides, and—more recently— flash floods affect the city of Semarang, due to its coastal position. The city also has a large task in providing for the basic needs, such as water and electricity, of its citizens. Physical shocks combined with stresses— such as a high level of unemployment— can increase the impact of the shocks and reduce the community's ability to survive, especially within poor and vulnerable communities.

A resilient city is a place that can provide protection for the inhabitants. As the first step, city inhabitants must be able to survive and adapt to various shocks and stresses. Security is the basis of strengthening resilience in Semarang against the shocks and stresses that have a direct impact on the community; security also covers the issues that were identified by city stakeholders. A successful urban system is a system that can provide protection and security to the community.

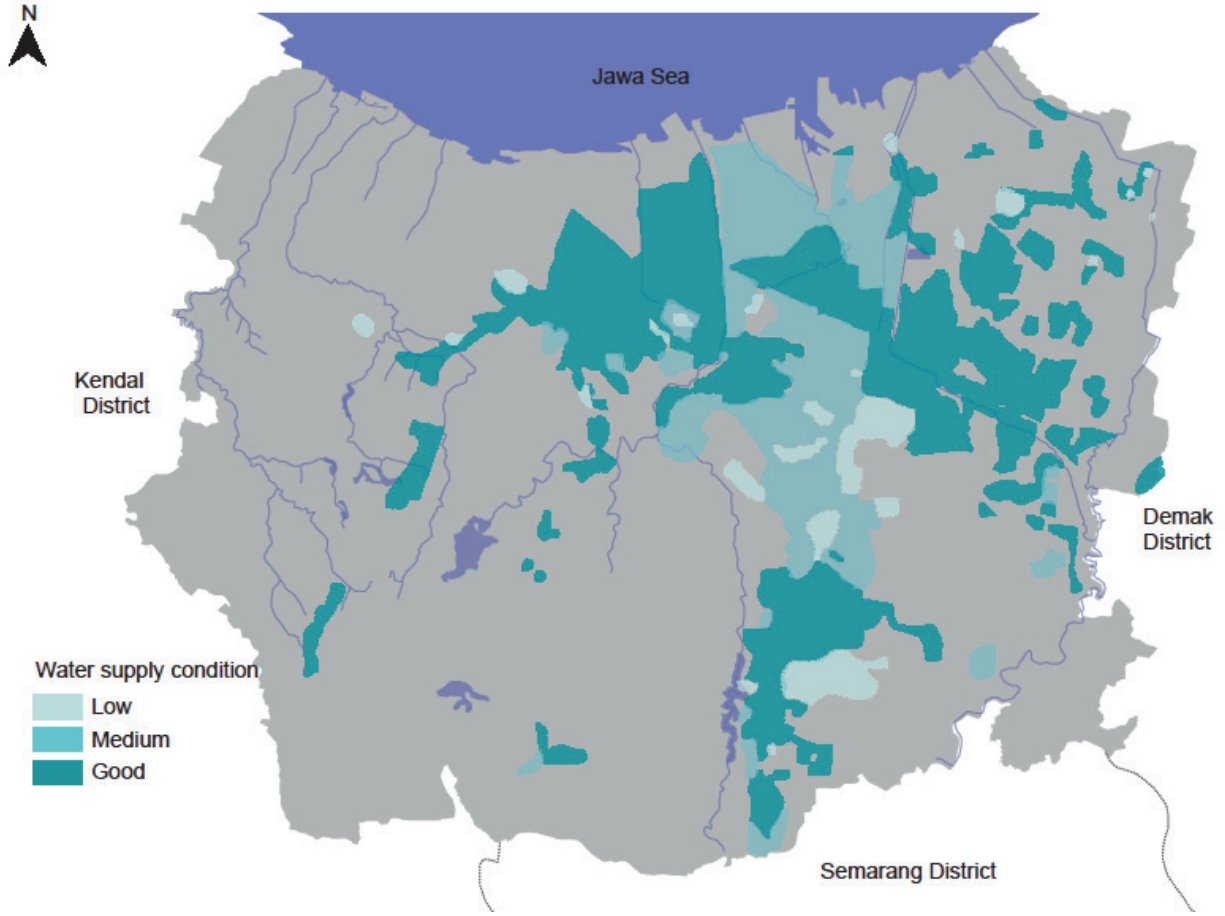
CLEAN WATER

The main water sources in Semarang are (1) water springs, which contribute up to 11%, (2) underground water, which supplies up to 19% and (3) surface water, which is estimated to provide a whopping 70% of the residents' water. However, the quality of these sources is threatened by both domestic and non-domestic waste into the river. Another problem is saltwater intrusion in the northern part of the city. The concentrate of chloride (Cl) has been increasing steadily for the past 20 years. Chloride content in clean water must not exceed 250 mg/L; levels higher than that indicate poor water quality. The underground water in the coastal area of Semarang exceeds the maximum level of chloride found in clean water.

Meanwhile, the need for clean water tends to increase along with rising population. It is estimated that the need for clean water will continue to increase up to 200% in the next 15 years. The city's water demand is supplied by water sources that are managed by the state-owned water company (PDAM) as well as non-PDAM parties. The Semarang PDAM manages their water source in a network of pipelines. Some sources of surface water are still in their development process and have not yet been utilized, including Waduk (reservoir) Jatibarang with the capacity of 1,000L/s, Blorong River with the capacity of 200L/s and Pramuka water processing installation (IPA) with the capacity of 200L/s.



Source: RISPAM 2013-2033(2012)
IMAGE 1 THE 2013-2033 PROJECTION OF CLEAN WATER DEMAND AND SUPPLY FROM PDAM TIRTA MOEDAL



Source: Semarang PDAM, 2013
IMAGE 2 PIPELINE NETWORK COVERAGE OF PDAM TIRTA MOEDAL IN 2012

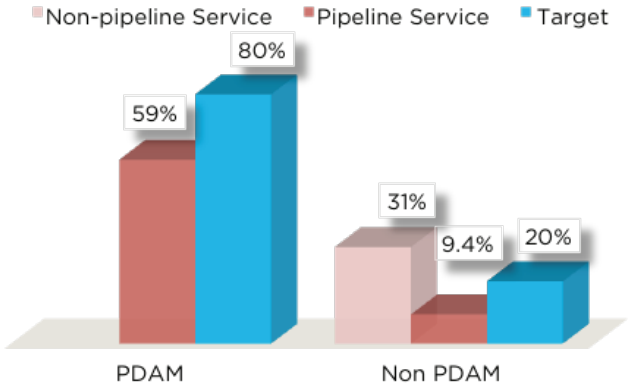


IMAGE 3 CLEAN WATER SERVICE IN SEMARANG IN 2015
Source : Semarang PDAM, 2015

Meanwhile, non-PDAM parties distribute water via a pipeline system and a non-pipeline system. Non-pipeline distribution by non-PDAM parties contributes 31% of the total clean water in the city, which comes from dug wells and pumped wells. The proportion of this contribution is still very high.

The 100:0:100 program listed in the 2015-2019 RPJMN targeted 100% clean water service in the city. In order to reach the target, the quality level of clean water service via a pipeline system by both PDAM and non-PDAM in Semarang must be increased. One of the challenges in providing clean water to citizens of Semarang is the diversity of topographic conditions in the city. For example, *Kelurahan* Gunung Pati has a steep slope level of 20-40%, which means that the PDAM cannot provide any water service at this location. Besides that, population increase subsequently causes the demand of clean water to increase as well. Twenty percent of the total citizens that have not been covered by the PDAM will be encouraged to get water from non-underground water sources.

Suyati
35 years old

citizen of Kelurahan Rowosari

"For everyday needs, (we) have water from water springs and artesian wells. But during dry season, the water isn't available, so (we) have to buy water. It costs around Rp 3,500/jerrican..."

ENERGY

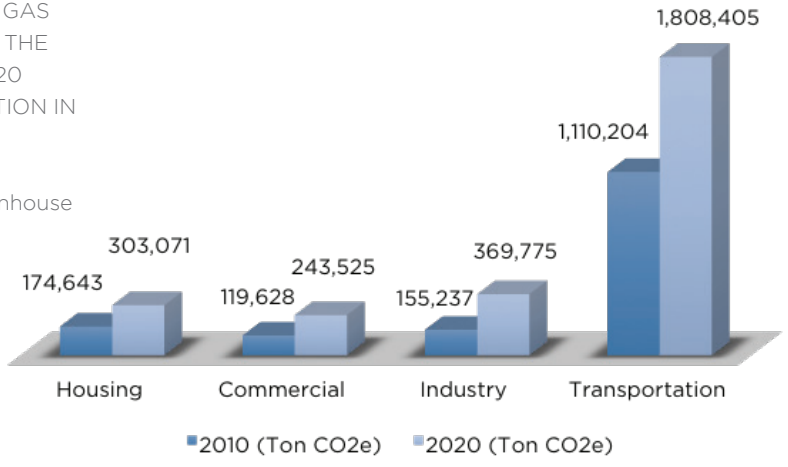
Matching water demand, as the number of citizens in Semarang increases, so too does the energy consumption level, concentrated in electricity and transportation. The supply of electricity is still balanced against the demand from various sectors. Demand for energy is supplied by the steam power plant (PLTU) Tambak Lorok in the North Semarang sub-district; there is a plan for a water power plant in Jatibarang. Supply of electricity in Semarang is managed under the authority of the central government. The electrical system in Semarang is connected to the Java-Bali national electricity system, supplied by several main power sources such as Paiton and Jepara. The 9 main power relay stations in Semarang meet the 2,000 MW demand, but despite that, power outage happens often. In 2013, there were 1,144 reports of power outage to the state-owned electricity company/PLN (BPS 2014).

Ironically, non-renewable energy resources such as oil, gas and coal are still predominantly used to fulfill energy needs in Semarang, despite the fact that these sources will be exhausted sooner with their continuous consumption. Furthermore, both fuel and electricity consumption increase emission levels.

Energy consumption in Semarang contributes to the city's greenhouse gas emissions. It is predicted that greenhouse gas emissions from the energy sector can increase up to 74.7% in 2020 with the current energy consumption pattern. Energy efficiency and the development of renewable energy sources are needed to ensure the continuation of energy service for the citizens of Semarang.

IMAGE 4 GREENHOUSE GAS EMISSION LEVEL FROM THE ENERGY SECTOR IN 2020 AND THE 2020 PREDICTION IN SEMARANG

Source: 2010-2020 Greenhouse Gas Profile



ECONOMY AND EMPLOYMENT

The challenge that must be faced by the city in terms of employment is the imbalance and mismatch between the labor demand and the available employment. The percentage of unemployment in Semarang is 7.76%, higher than the average percentage in the province of Central Java (5.86%). Since Semarang is the province's capital and one of the metropolitan centers in Java, workers and job seekers also come from outside of the city.

The industrial sector holds the highest levels of employment in Semarang, yet its contribution to the city's economy is the second highest after trade, and the hotel and restaurant sector. However, based on the RPJMD, Semarang is encouraged to transition to a trade and service city. Therefore, the economy is shifting towards the trade and hospitality sectors, and then to a processing and communication sector. Meanwhile, the industrial sector would continue to develop in the suburban outskirts of the city. This goal must be supported by preparing the adequate labor force.

The number of small and medium enterprises (SMEs) is growing, on average, 2.83% annually (Semarang municipal secretary) with a total of 11,585 SMEs in 2014. SME is a potential sector to reduce the income gap. Popular SMEs in Semarang are, among others, smoked milkfish business, hand-made batik and traditional food processing. SMEs are a part of the formal sector but they are offset by the informal sector spread in the city. SMEs and informal sector do not only provide goods and services to consumers with low purchasing power, but they also cater to the needs of consumers with higher purchasing power. Small enterprises also provide raw materials or services to medium and large enterprises, including the local government. The social purpose of these businesses is to achieve the minimum level of welfare, which guarantees the provision of basic needs to all members of the community.

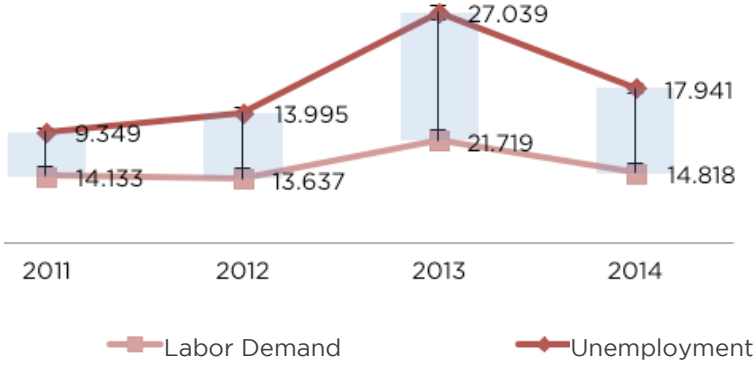


IMAGE 5 THE 2014 EMPLOYMENT GAP
Source: Taken from different sources, 2016

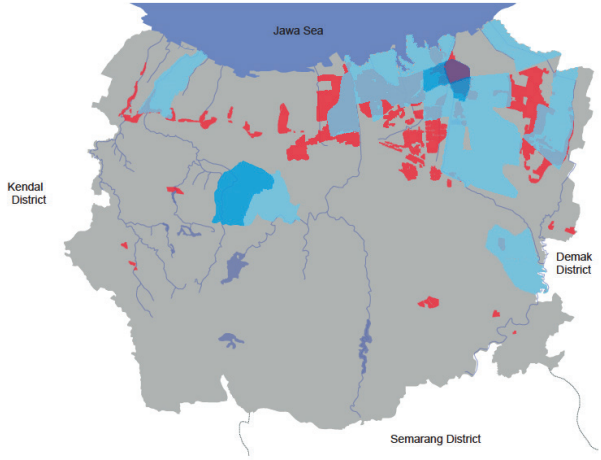
In the context of fairness and equality, men currently dominate labor in Semarang, with a ratio of 60:40, although the gender proportion of job seekers is 50:50. Equality between male and female laborers and also disabled people must be taken into consideration; everyone is entitled to equal rights to gain income.

Other than that, health and social security for the people must be extended, not only to the formal sector but also to the informal sector. The formal sector's participation in insurance schemes is good enough, however, workers in the informal sector— including traders, fishermen or freelance laborers—do not adequately participate. This low participation in the informal sector is due to the community's lack of awareness surrounding insurance, though there is potential for development in the informal sector as well as in micro enterprises and small and medium enterprises.

Another sector that holds an important role is the market, both modern and traditional. Modern and traditional markets affect the regional income. The income tax from businesspeople and traders can increase the original regional income (PAD). It is then necessary to maintain the presence of the market. Other than functioning economically, traditional markets specifically have historical values that should be maintained, such as in Pasar Johar.

DISASTERS

Semarang is known for different types of disaster especially with its frequent flooding. There are two types of floods that occur in Semarang, i.e. tidal flooding caused by, among other things, the increase of seawater level and land subsidence (causing seawater to flood the coastal area), and flash flooding (a sudden flood due to high precipitation that increases the river's water discharge). There are 21 rivers located in Semarang, creating a high risk of flash flood. Other contributing factors to flash floods include poor drainage infrastructure, environmental degradation in the upstream area, sedimentation in the downstream area and high precipitation.



Source: Taken from different sources, 2016
IMAGE 6 LOCATIONS OF FLOOD-PRONE SETTLEMENTS AND FLOOD OCCURRENCES IN 2015

- Flood prone area
- 1 - 3 flood event
- 4 - 6 flood event
- >6 flood event

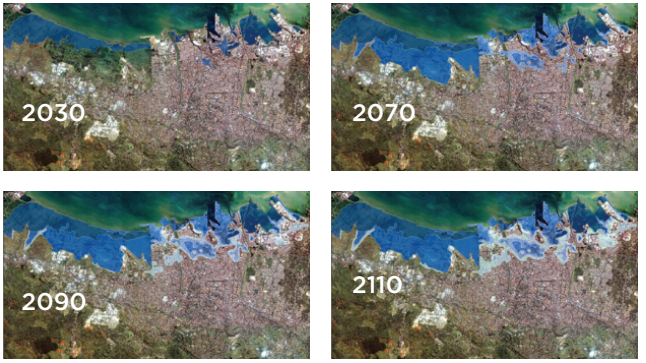
Communal waste management can also contribute to the likelihood of a flood disaster. Flash floods and tidal floods are related to the community's neglect towards the environment, such as in the case of littering. Furthermore, the municipal government's waste management service only managed to pick up 34% of the total waste in 2013, and left behind the remaining 66%. This illustrates the poor management of the city's waste, considering 50% of the total population was not covered by the service— especially in the slum *kampung* where the low income and vulnerable people live.

Flood disaster is a regional issue, since it is not isolated to one particular area. It needs thorough management and requires cooperation between different administrative regions. For example, the upstream area of the Kali Garang watershed is located in the Semarang district. The development trend towards areas in upper Semarang, which initially was established as a conservation area, creates a more complex situation.

Suharjono,
52 years old

Head of Prevention and Preparedness of Semarang Disaster Mitigation Agency

"... The disaster in Semarang that is highly dangerous and kills many people is flash flood since it comes without warning with strong destructive power and in the past, before any early warning system was established, a lot of people failed to save themselves,"



Source: Research and Technology, SANITATION AND LANDSCAPING OFFICE, UNDIP, IPB, 2009
IMAGE 7 THE ESTIMATION OF SEAWATER LEVEL INCREASE

Meanwhile, tidal flooding, beginning in 1957, is increasingly worse due to land subsidence and climate change causing seawater rise. Vital assets such as the airport, the rail station and the port are located in areas that are prone to tidal flooding. The rate of land subsidence, which compounds the impact of tidal floods, has increased to >10-13 cm/year. Underground water extraction, a key source of water in the city, also increases the likelihood of land subsidence. This creates more problems in water provision because the current pipeline network is still limited.

Sea levels are estimated to increase by around 15.5 cm by 2030 and 77.5 cm in 2110. However, land subsidence poses a greater, more urgent threat to the community. It reached a growth rate of 13 cm annually in 2015, meaning that tidal floods would affect around 300,000 people inhabiting the coastal area of Semarang, including North Semarang, East Semarang sub-district and Gayamsari sub-district.

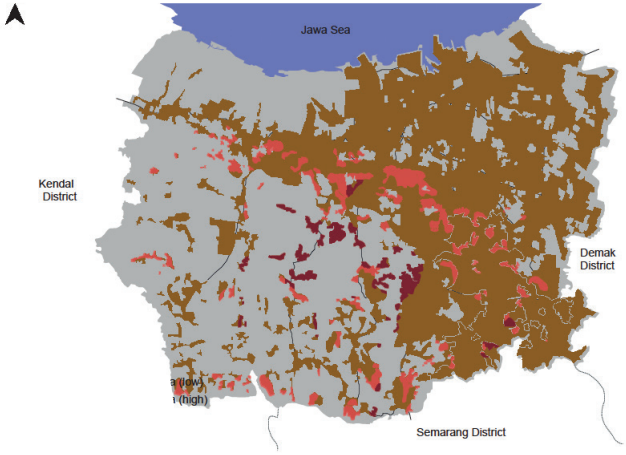
Unfortunately, the residents in said coastal communities mainly work as factory workers and fishermen, and do not have the resources to mitigate these issues. Some of them adapted their houses to be higher than the ground surface, while some simply see the flood as a part of normal life considering it happens so often. Furthermore, their *kampung* is largely comprised of slums and exist in poor conditions.

Beyond this, landslide incidents also occur in Semarang, especially in the higher altitude areas of South and East Semarang. Landslides are influenced by the fluctuation of precipitation, type of soil, and decreased vegetation due to higher development in risk prone areas. This offers a challenge with the current development trend towards the hilly upper Semarang.

Prof. Sudharto P. Hadi,
62 years old

Chief Operating Officer of the Urban Development Advisory Council (DP2K)

"...we can't just be reactive, but (we need) to be proactive, solving problems starting from the upstream (area),"



Landslide prone housing area (low)

Landslide prone housing area (high)

Built area

The government of Indonesia (GoI) encourages efforts to reduce the risk of disasters by establishing disaster-resilient *kelurahan* (rural villages). On that note, Semarang established a Disaster-preparedness Group (KSB) to reduce the impacts of disasters on a *kelurahan* level. By the end of 2014, Semarang established 22 KSBs in locations that were prone to floods, landslides and fires. Every *kelurahan* that is prone to disasters must be continuously encouraged to establish KSBs. Furthermore, training and knowledge sharing on the risk of disasters must be spread and applied in the community.

Source: Taken from different sources, 2016
IMAGE 8 THE LOCATIONS OF SETTLEMENTS PRONE TO MASS MOVEMENT IN 2014

"A phenomenon to spontaneously help each other, such as establishing a disaster command center, getting things to higher ground and collecting donation for flood victims, naturally happens in villages as a way to response (to disasters)",

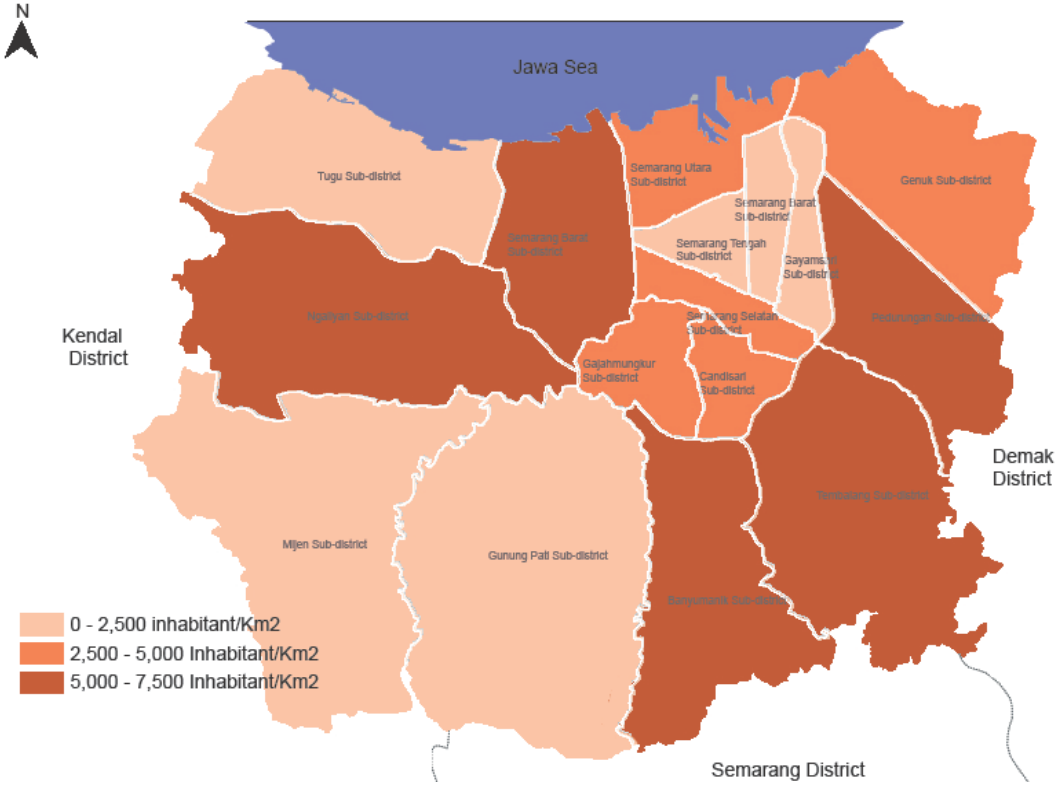
**(Rendy A. Diningrat,
winner of 100RC blog writing competition, 2015)**

DISEASE OUTBREAKS

Tropical climate and the steady increase of temperature due to climate change have aided the flourishing of different types of viruses in Semarang. High levels of humidity also encourage mosquitoes to breed, which is one reason why Semarang has a high number of dengue hemorrhagic fever (DHF) cases, the 3rd highest number of DHF cases in Indonesia in 2015.

DHF is caused by dengue virus, which is transmitted by mosquitoes, *Aedes aegypti. Aedes aegypti* can breed in abandoned houses, empty land, midden, poultry enclosure, horticultural garden, mosques, stagnate gutters, water parks, water container behind water dispenser and refrigerator units that often are overlooked by people.

Human population density is another factor of DHF occurrence, where dense areas would tend to have more DHF case. People younger than 14 years old are more prone to contract DHF. Special care and interventions are needed to reduce the risk of DHF in this vulnerable age group, for example by conducting interventions at their locations and during their activities. DHF prevention efforts at school should become one of the main concerns, considering school-aged children spend much of their time at school, especially in the morning (Semarang HCVA, 2015).



Source: Taken from different sources, 2016
IMAGE 9. 2010-2015 RECAPITULATION OF DHF CASE NUMBER IN SEMARANG

Prof. Dr. Ridad Agoes, 75 years old

Disaster Mitigation Specialist

"... People's mobility determines the spread of DHF virus, such as going to schools or workplaces, so it is necessary to monitor it...,"

MOBILITY

RELATED SHOCKS AND STRESSES

If Semarang fails to provide good access and connectivity, the fundamental element of security cannot be achieved. A city with good mobility can support its citizens to conduct various activities easily and affordably. Good mobility also prevents geographical isolation that weakens the social relationships between communities and other groups.

Challenges related to mobility have been put under the spotlight considering the increasing risk of congestion in numerous parts of Semarang. Public transportation is still not optimal in both its quantity and quality. The condition is complicated further by the sprawling regional development, preventing infrastructures to be provided efficiently.

PUBLIC TRANSPORTATION

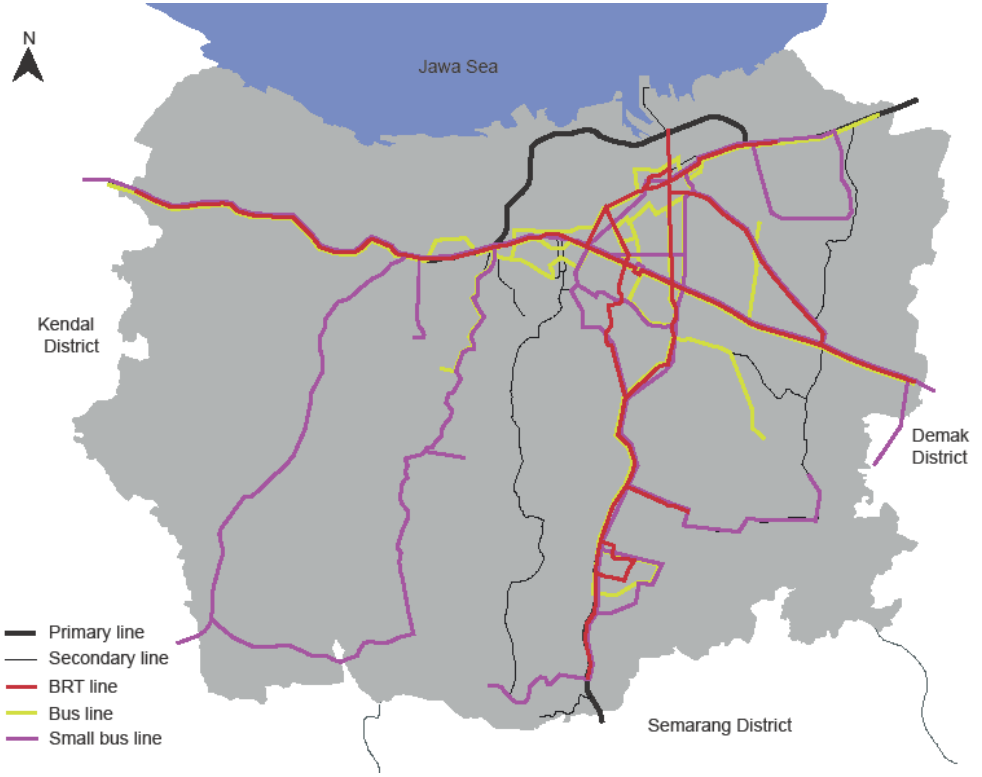
Semarang is the provincial capital, located strategically, supported by train line, seaport and airport; goods and human transport here is very active. The annual increase of population in Semarang also increases the demand of mobility. However, the quality and quantity of public transportation in the city is inadequate, causing people to choose their private vehicles over public transport.

The growth of private vehicle ownership in the past five years has shown a significant increase, especially for motorbikes. From 2013 to 2014, private vehicle ownership increased as much as 16%, while road only grew 0.09%. The management of public transport in Semarang is not yet integrated and effective, despite establishing the Bus Rapid Transit (BRT) system.

The quantity of the BRT unit is insufficient, causing a longer waiting period at every bus stop, especially at bus channels with a high number of passengers. The separated public transport system also raises the cost of transportation, particularly when passengers have to change to different buses—they have to pay for each bus separately. The buses themselves, as well

as the bus stops, are in poor condition with a host of damages. Bus stops were designed to have a higher platform than the pavement; however, this separates BRT from other modes of public transportation.

Private vehicles, especially motorbikes, can be purchased quite easily and cheaply, which attracts more people to get their own. This, in return, increases congestion significantly. One major concern is the low supervision of the use of private vehicles on the road. Underage students are often found driving, having obtained their driving license illegally. These students never took the driving exam that should have been obligatory to ensure the adequate mastery of driving. This increases the number of road accidents.



Source: Taken from different sources, 2016
IMAGE 10. 2014 PUBLIC TRANSPORTATION NETWORK

URBAN SPRAWL AND COMMUTE

Another challenge regarding public transportation is its limited coverage; it is not able to cover every area in Semarang. Transportation in Semarang can be categorized into two types: formal and informal. Formal transportation modes include minibus (*angkot*), bus and BRT, while informal transportation modes include motor taxi (*ojek*) and rickshaw. There are more than 2,000 public minibuses and 90 formal routes in Semarang, but despite this some areas are still not covered. Many of these areas are settlement or trip generation areas, so the inhabitants choose to use informal transportation modes that actually do not adhere to government-implemented conditions of public transportation. The spreading of the city in urban sprawl with people moving to work and study present a challenge in providing transport infrastructure. The cost of infrastructure and service for transportation will increase and coordination with the surrounding areas will be needed to manage this challenge.

Private vehicles are a more attractive option than public transport. However, this creates several issues. On one hand, private vehicles enable the community to conveniently reach their destination, but on the other hand, they increase congestion. The highest mobility can be found on main roads, despite the capacity of these roads remaining low, which results in congestion. Transportation is also a high emission source—with high frequency of congestion, the produced emission will increase.

Santi,
59 years old

citizen of
Kelurahan Rowosari

"...where I live there isn't any public transport, so we rely on our motorbike. If we didn't have the motorbike it would be hard to go to places. The kids take the minibus operated by someone in the neighborhood..."

CAPACITY

RELATED SHOCKS AND STRESSES

Capacity is the keyword in understanding city resilience in the context of 100RC and the basis of strengthening said resilience. However, capacity is not yet considered crucial in Semarang. The system does not have enough capacity when a city has a great potential in the economy, location and funding, but is unable to improve quality of life.

Despite its great potential, Semarang cannot progress to the next level because it is not able to mobilize resources from various levels. Not only does the government lack this ability, but so too do other stakeholders, including academics, communities, the business sector and greater society. Furthermore, the current governance system and leadership cannot support the participation of stakeholders in contributing to the city's development.

Achieving good governance and a responsible government requires implementation of the principles of accountability, transparency and legal supremacy by involving members of community in the drafting process of every public policy. The community must be accommodated throughout this process. This effort, although still not optimal, had been implemented in the development planning of Semarang.

COORDINATION FOR DEVELOPMENT IMPLEMENTATION

In carrying out the planned programs, the availability of resources and the ability to allocate those resources are the foundation for achieving optimal development. The ability to allocate available resources is based in the ability to lead, shown in the way the city government utilizes the knowledge or deep understanding of various potentials and problems in order to find various alternative solutions.

There are four issues in building the capacity of resources: institution, knowledge, leadership and accountability. Based on the workshop and capacity

assessment of Semarang held by the 100RC team, the city's ability was considered still inadequate and required more improvement, especially in the aspects of strategic environment, regional finance, human resources, knowledge development and inclusivity.

Strategic environmental analysis must be considered in drafting policies and budgets. This has been applied in the city's planning and policy documents, however this is not supported by an analysis related to the capacity of Semarang in facing and creating a strategic environment in managing various changes. This indicated that a dialogue mechanism to discuss strategic environment had not yet been seen as a priority.

Semarang's financial management is based on the regional budget (APBD). APBD management is targeted to create an illustration of the regional financial capacity and ability to fund regional development. In general, sources of funding in regional finance are derived from 2 sources: regional income (tax, levy and grant), and other funds from the cooperation between the government and other parties (joint venture and concession).

The issue in this context is the high amount of undisbursed funds (SILPA) in Semarang. In 2014, SILPA reached 33%, far above the allowed percentage (6%). Infrastructure programs have low budget absorption, with some only reaching 50%. This could indicate that the city's preparedness in managing shocks and stresses might be reduced. As the value of SILPA increases annually, it shows that the funds from PAD and other regional income sources have not been absorbed optimally. Furthermore, another problem is the absence of a follow-up of the SKPD program post-evaluation.

One of the key components in achieving an inclusive Semarang is the availability of a mechanism to ensure community's participation. *Musrenbang*, a regional development-planning forum represents this type of participatory development planning. The municipal government holds *Musrenbang* annually. This forum is conducted in phases on a neighborhood, *kelurahan*, sub-district and municipal level in order to collect people's opinions related to city development. Unfortunately, the implementation design of *Musrenbang* is heavily influenced by a top-down approach, signified by the unified planning approaches in the national and regional level. The forum is often too rigid and formal, especially concerning the schedule. It is too short to enable a more intensive participation and communication between the government and community.

PUBLIC INFORMATION

Semarang, a metropolis in the Central Java Province, has a faster information cycle compared to the surrounding cities or districts. Therefore, periodic informational updates and collection of the newest information are necessary to improve future policies and regulations in Semarang. It is necessary to highlight the importance of transparency in information. Accountability of the government can be increased through the mechanism and implementation of principles of transparency.

"Semarang government must improve their communication with the community because people would also like to be involved in the development of Semarang"

(@richamiskiyya, a participant of the 100RC Twitter competition, 2015).

Public information is valued in two ways, from the government and community. The information from the government is expected to be complete, transparent, and integrated between the SKPDs, while information from the community is expected to include reports and permits that people require so they can be followed up fast and properly.

The city facilitates information sharing via electronic media that can be accessed easily by the community. However, the problem is that not all communities can access electronic media, which means that information dispersion via print media or government socialization is still needed. The community expects a clearer system for permit processing as well as its easy application. The permit application process currently takes a long time. However, ease is not the only factor observed. Adequate and transparent information will enable people to apply for permits correctly and thus help create a better city development.

People's complaints must be collected and followed up in a two-way process between the government and community. It is expected that this will improve public service performance. Too many separate outlets for complaint have caused some complaints to go unnoticed. Another problem is that a facility for people to file a complaint has still not been properly introduced.

HUMAN RESOURCES

The level of educational qualification is not balanced in Semarang. The gap between primary school and junior high school graduates is quite significant. It shows that the education level of some citizens of Semarang is still relatively low. With a low education level, they would face problems in gaining employment. Therefore, to improve their welfare, they must improve their education level. Most of the available employment requires workers with a minimum high school degree. This situation contributes to the low productivity of Semarang's citizens.

Meanwhile, around 27% of the total workers of the Semarang government office only has a high-school degree, while 48% has a bachelor's degree, 5% has a master's degree and only 1 person has a doctorate. This is evidently a challenge that must be dealt by building educational capacity to improve the organizational ability and regulatory system in mobilizing resources to improve the city's development in the future.

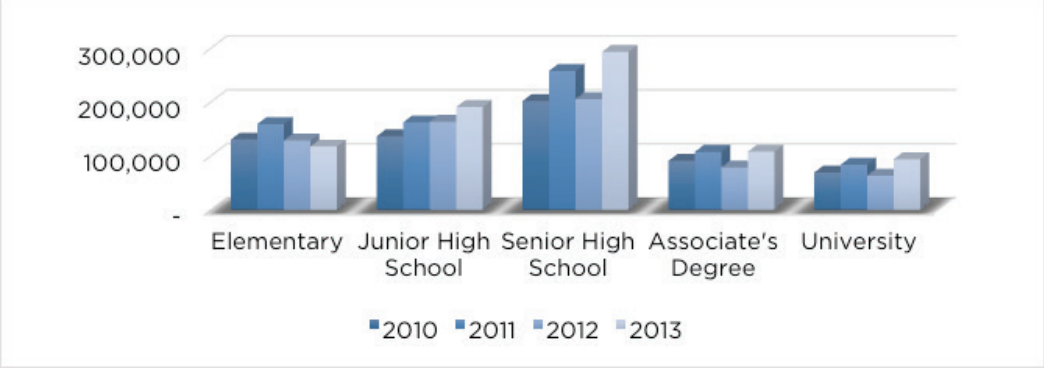


IMAGE 11 THE NUMBER OF WORKERS BASED OF THE QUALITY OF EDUCATION IN 2010-2013 (NUMBER OF PEOPLE)

RESILIENT CITY STRATEGY

Semarang city resilience strategy is built on capacity building of the city's institutions, people and communities while addressing the main challenges in providing security and mobility. Therefore, the city resilience strategy covers the perceived challenges and functionality and capacity of the city in facing shocks and stresses.

Each initiative mainly tackles direct challenges, but it is strongly based on capacity building of the affected stakeholders in order to build and maintain their resilience better. People and communities respond, adapt and learn when they face shocks and stresses that are beyond technical solutions and infrastructure. A holistic view on Semarang resilience challenges includes 18 strategies and 53 initiatives that fall under the six pillar strategy.

The six pillars are, as follows:

1. SUSTAINABLE WATER AND ENERGY

Semarang will meet and use water and energy in a sustainable manner to address challenges such as the risk of water scarcity, decreasing quality of water and undistributed electricity.

2. NEW ECONOMIC OPPORTUNITIES

Semarang will create an economic climate that allows the emergence of new opportunities in order to decrease the number of unemployment and prepare for a new economic status as a center of trade and services

3. PREPAREDNESS FOR DISASTERS AND DISEASE OUTBREAKS

Semarang will improve information sharing, innovation and collaboration for improving the preparedness for disasters and disease outbreaks

4. INTEGRATED MOBILITY

Semarang will improve the connectivity and institutional capacity of transportation service to address mobility challenges such as traffic congestion, poor quality of public transportation and poor accessibility

5. TRANSPARENT PUBLIC INFORMATION AND GOVERNANCE

Semarang will increase information transparency and governance to improve the quality of the program and its performance considering the performance of development budget is still low, resulting in inefficient public services

6. COMPETITIVE HUMAN RESOURCES

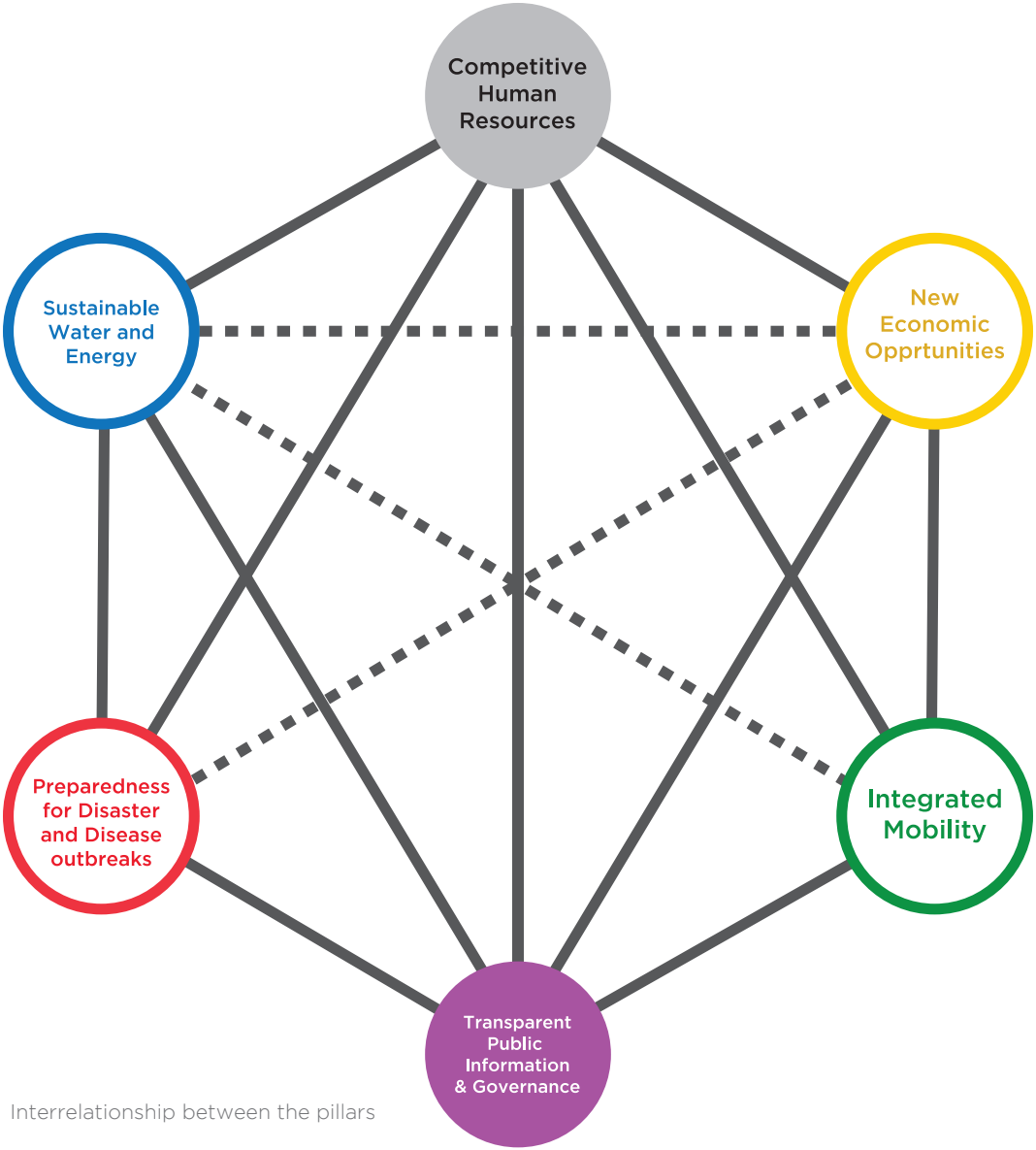
Semarang will provide access to new skills and knowledge for the citizens, preparing the ASEAN Economic Community launch and also capacity building of Semarang labor force, considering their current low qualification.

THE INTERRELATIONSHIP BETWEEN STRATEGIES AND PILLARS

Our pillars and strategies are interrelated to ensure that the strategies and initiatives provide integrated solutions. “Transparent Public Information and Governance” and “Competitive Human Resources” are strongly correlated to other pillar strategies, showing our focus on building capacity towards better city resilience.

One pillar has elements that are related to other strategies under a different pillar. For example, our strategy on developing environmental and social-friendly businesses under “New Economic Opportunities” is closely related to our innovation effort in water provision under “Sustainable Water and Energy” and preparing workforce for the job market under “Competitive Human Resources”. This interrelationship also presents in other pillars.

This image below shows the interrelationship between the strategies and pillars, describing the integrated and holistic view in building resilience. The straight, bold line shows a stronger relationship between pillars.



Interrelationship between the pillars

PILLARS	Sustainable Water and Energy	New Economic Opportunities	Preparedness for Disaster and Disease Outbreaks
STRATEGIES	1. Enhancing the performance of basic water management 2. Promoting innovations in water provision 3. Promoting environmentally friendly behaviors	1. Promoting entrepreneurship to increase the competitiveness of trade and services 2. Developing environmentally-friendly and socially oriented innovative businesses 3. Strengthening multi-stakeholder (academic, business, community, government) partnership to create job opportunities	1. Developing technology for disaster and disease management 2. Enhancing the capacity of stakeholders in disaster and disease management 3. Improving coordination in disaster risk reduction
INITIATIVES	8 Initiatives	11 Initiatives	7 Initiatives

Integrated Mobility	Transparent Public Information and Governance	Competitive Human Resources
1. Encouraging a change in behavior from using private vehicles to public transport 2. Improving coordination and institutional management of public transport 3. Integrating transportation planning	1. Optimizing Musrenbang (development planning forum) in the planning process 2. Improving the integration of planning and city budgeting 3. Optimizing the government's coordination of data integration and public information	1. Preparing the workforce for the current job market 2. Promoting the value of pursuing higher education qualifications 3. Improving non-formal education
13 Initiatives	**9 Initiatives**	**5 Initiatives**

SAMPAH

LIST OF STRATEGIES AND INITIATIVES

How to read the strategy

Key initiative: This is the priority initiative(s) from each strategy. The key initiative is used to manage core issues of respective challenges, using a proactive manner, and not reactive, in dealing with shock and stresses.

Status : It shows whether the initiative is ongoing (already planned), advancing (improving current existing initiative) or inventing (new)

Target location : Location of the initiative implementation

Target group : People who are affected directly by the initiative

Proposed initiative owner : The institution that is responsible to lead and implement the initiative

Proposed initiative supporter : Institutions that will support the initiative owner in the implementation phase

Time period : Timeframe for the implementation of initiatives. It is divided into 3 terms: short (1 months to 1 year), medium (1 to 2 years), long (more than 2 years)

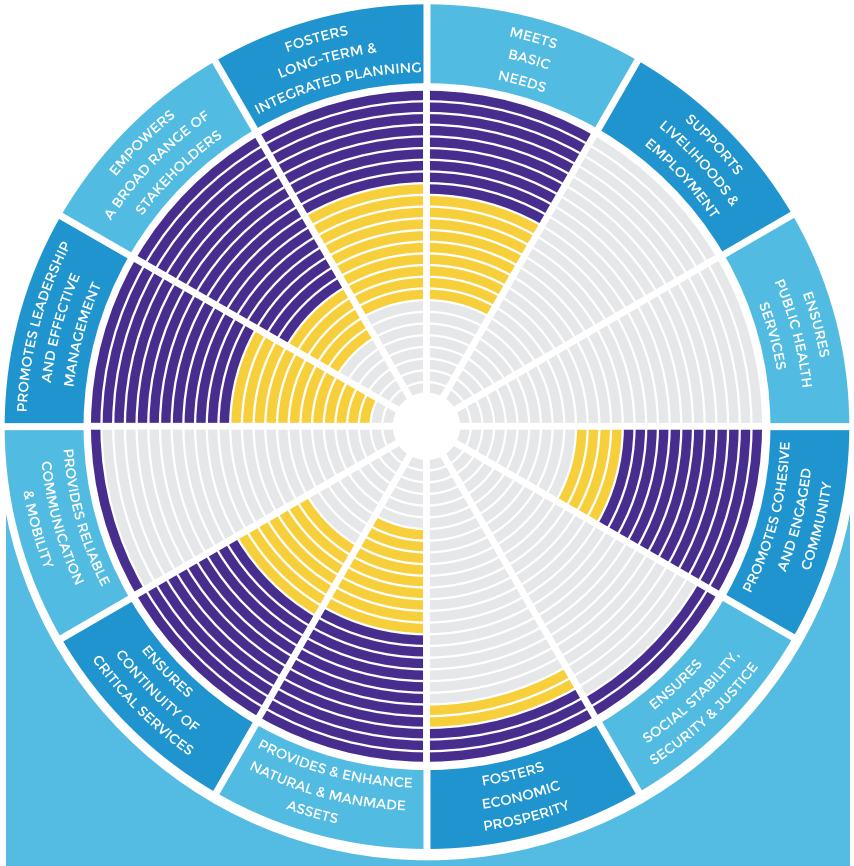
Resilience value : Multiple resilience benefits that can be gained from initiative implementation

01

1st Pillar Strategy

Sustainable Water and Energy

Semarang will meet and use water and energy in a sustainable manner


MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS
FOSTERS LONG-TERM & INTEGRATED PLANNING

Strategies and initiatives on this pillar address the challenges in infrastructure and environmental dimension in Semarang.

The strategies focus on better community engagement, answering the abovementioned challenges and also the challenges in strategy and leadership dimension

A INCREASING THE PERFORMANCE OF BASIC WATER MANAGEMENT

B PROMOTING INNOVATION IN WATER PROVISION

C PROMOTING ENVIRONMENTALLY FRIENDLY BEHAVIORS

What can you do?

- Report it if you see environmental violations
- Use water wisely
- Reduce the use of lights in daytime

A INCREASING THE PERFORMANCE OF BASIC WATER MANAGEMENT

Until now, the pipeline service of clean water from both the PDAM/State-Water Company and non-PDAM sources (community water, private, etc.) have not been able to cover all regions in Semarang. In 2015, the PDAM managed to cover 59% of the total area and non-PDAM covered 9.4%, whilst the rest of the population met their need through non-pipeline network. Considering this condition, this strategy is trying to build, develop and optimize the management of clean water so that the pipeline service coverage of clean water from both PDAM and non-PDAM will reach 100%, aligned with the national target.

Initiatives :

A1 | Improve Monitoring and Imposing Better Sanction for River Pollution

A2 | Watershed, Water Reservoir and Basic Water Source Conservation

A3 | Advocacy and Partnership with Provincial Government and Surrounding Regions

A1 | Improve Monitoring and Imposing Better Sanction for River Pollution

Key Initiative

Advancing

Sixty nine percent of the total amount of clean water in Semarang comes from the rivers. However, the quality of these rivers is decreasing due to pollution. Therefore, the initiative must be conducted immediately in order to maintain the quality of clean water for the community.

Action: Improving a sanction mechanism for river polluters and developing communal waste treatment that is aligned with the Regional Regulation No. 6/2012 on waste management and the Regional Regulation No. 13/2006 on environment control. Monitoring system must also be improved. The watershed area (DAS) from upstream to downstream potentially can become a major source of clean water. Coordination with neighbouring areas is also necessary.

Resilience value: River and environment that are conserved properly can improve the quality of water source as well as public health. Conservation will improve the quality of environment and livability, especially for the people who live near rivers.

Target location: Twenty one rivers in Semarang, focusing on the rivers that have been utilized by the PDAM including Kreo, Garang and Kripik River.

Time period: Short term

Initiative owner

Semarang Environmental Office and Semarang Department of Water, Energy and Mineral Resources.

Initiative supporter

urban and environment communities, the police, district office, sub-district office, Central Java Water, Energy and Mineral Resources Office, Basin Pemali Juwana regional office, Semarang District, Kendal District, community, community groups

A2 | Watershed, Water Reservoir and Basic Water Source Conservation

Key Initiative

Advancing

The various environmental challenges which Semarang must manage require comprehensive solutions. The upstream area provides water and requires special attention. Problems on the upstream area could affect downstream, where the city is functioning and activities mainly happen.

Therefore, solutions to environmental problems should consider the problem source and does not only focus on the affected areas. The initiative also aims to ensure the quality of clean water sources. Some conservation efforts have been done in Semarang such as greening the river bank of West Flood Canal.

Action:
Upstream area reforestation, involving local community and choosing species with economic value, promoting biopore method, controlling water loss in the supply system

Resilience value:
Upstream area conservation can improve the rehabilitation of ground water. Besides environment quality improvement and the fulfillment of basic needs, the innovation will be able to improve community's welfare by planting species with economic value.

Target Location:
Upstream area of the watershed in Semarang

Initiative owner

Semarang Environmental Office and Agricultural Department

Initiative supporters

Semarang Water, Energy and Mineral Resources Office, environmental communities, Central Java provincial government, Basin Pemali Juwana regional office, surrounding regencies, community, community groups, private sector

A3 | Advocacy and Partnership with Provincial Government and Surrounding Regions

Advancing

The municipal, provincial, national government must control and coordinate the excessive use of water sources (dams, rivers, ponds, ground water) by industry, trade and services. The initiative aims to secure adequate clean water sources.

Action: Develop an advocacy a campaign to limit ground water consumption and maintaining the balance of ground water

Location target: Areas that are illegal for groundwater extraction, sources of surface water in Semarang

Initiative owner

Semarang Water, Energy and Mineral Resources Office

B PROMOTING INNOVATION IN WATER PROVISION

Climate change increases negative impacts of droughts, catastrophic events and the spread of diseases. Prolonged drought pushes the public and government to create an innovative alternative clean water supply, such as Rain Water Harvesting (RWH) and the development of grey water recycling process. Therefore, the strategy's aim is ensuring the continuous provision of good quality clean water during the rainy and dry season.

Initiatives :

B1 | Extend the Utilization of Rain Water

B2 | Optimize Surface Water Utilization

B3 | Promote Grey Water Recycle Technology

B4 | Explore the Possibility of Sea Water Desalination

B1 | Extend the Utilization of Rain Water

Key Initiative

Advancing

Rain Water Harvesting/ RWH is collecting and storing rain water for later use. The initiative has been introduced in Semarang by some institutions for various purposes. Semarang Environmental Office initiated the installation of RWH at public and educational facilities, located at *Kelurahan* Tandang and *Kelurahan* Wonosari. The Semarang Water, Energy and Mineral Resources Office used this method to reduce the amount of runoff and manage floods. The Semarang Agricultural Office applied the method to irrigate agricultural land. The RWH has the potential to become an alternative water source in the city, especially water scarce areas.

Action: Promoting the concept of RWH and providing support for the initial construction which may include offering incentive and guidance for households that will be installing the RWH. The services will be extended, especially to meet household needs, in line with the target of the national and municipal government's programs to provide clean water to every member of the community.

Resilience value: This initiative does not only support the provision of basic water need but also minimize the impacts of disasters. The main benefit of RWH is to provide alternative water source. It can also reduce the use of groundwater that contributes to land subsidence in Semarang and reduce runoff.

Location target: Public facilities, educational facilities, household, offices and commercials buildings

Time period: Short term.

Initiative owner

Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang City Planning and Housing

Initiative supporter

Integrated Licensing Service Agency, business sector, sub-district office, *kelurahan* office

B2 | Optimize Surface Water Utilization

Key Initiative

Ongoing

Excessive groundwater utilization can cause land subsidence and seawater intrusion, which can be seen from the high concentration of chloride in some areas in Semarang. The utilization of surface water from reservoirs can replace ground water. This method is expected to cover the majority of domestic and non-domestic needs. Currently, Semarang utilizes several sources of surface water, such as Jatibarang Dam.

Action: Building new water storage such as ponds/retention basin to help retain the surface water. This initiative is in line with the visions and missions of the current mayor of Semarang to build new ponds as a source of clean water.

Resilience Value: This initiative also aims to decrease runoff, land subsidence and sea water intrusion. So, it will become an alternative way to ensure the provision of basic needs for Semarang citizens and minimize the disaster impacts.

Target Location: *Kelurahan* without a pipeline service

Time period: Medium term

Initiative owner

PDAM (state-owned water company) Tirta Moedal

Initiative supporter

Semarang Environmental Office, Semarang City Planning and Housing Office, Integrated Licensing Service Agency, Semarang Agricultural Office, Semarang Water, Energy and Mineral Resources Office, business sector

B3 | Promote Grey Water Recycle Technology

Advancing

Grey water can be an alternative water source, especially for plantations. Grey water recycle technology requires simple methods and low budget. Simple filtering process can process grey water for non-human consumption use. Additionally, by reusing treated wastewater, environmental pollution and water use can be reduced.

Action: Treating and reusing grey water for non-human consumption purposes, such as irrigation; advocacy (by the government) on the standards and conditions of grey water recycle technology development; preparing installation guides of the grey water recycle system.

Target Location:
Households, plantations in Semarang

Initiative owner

Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang PDAM (state-owned water agency), Semarang City Planning and Housing Office, private water companies, housing developers, industrial estates/companies, commercial companies, community groups

B4 | Explore the Possibility of Sea Water Desalination

Inventing

As a coastal city, Semarang has a great potential for developing desalination plant to meet domestic and non-domestic need of clean water. This initiative is in line with program planned in Long Term Plan of Semarang 2005-2025 and clean water system master plan of Semarang. However, there are no cities in Indonesia that has developed this technology due to high cost of installment and production. Also, the implementation has possibility for resulting in detrimental environmental impact

Action:
Exploring the possibility of sea water desalination, assessing the feasibility and socio-environmental impacts to be taken as further input to the Semarang long-term development plan.

Initiative owner

Semarang Water, Energy and Mineral Resources Office, Semarang PDAM (state-owned water agency), private water companies

C PROMOTING ENVIRONMENTALLY FRIENDLY BEHAVIORS

Daily life is very much connected to energy and the utilization of electricity and fossil fuel. Considering that fossil fuel is not renewable, initiatives must be planned to prevent excessive consumption of fossil fuel. While the provision of fuel and electricity is under the national government's authority, energy issues must be addressed at municipal level. The city should encourage energy-saving behaviors and the development of alternative energy to preserve the environment.

Other than identifying alternative water resources (explained in the previous section), it is also important to consume water wisely. Water conservation needs to be encouraged, minimizing water exploitation..

There are a lot of ways to conserve energy, such as turning lights off when not in use, using shower (instead of a bath) and minimizing the use of private vehicles. Such simple actions, when conducted collectively, can save water and energy.

Initiatives :

C1 | Campaign for Public Awareness to Save Energy and Water

C2 | Scale Up of Waste To Energy Use

C1 | Campaign for Public Awareness to Save Energy and Water

Key Initiative

Ongoing

The WWF named Semarang energy-efficient city in 2014 for the efforts to reduce the effects of greenhouse gas emission and energy consumption. The high emission of greenhouse gases contributes to climate change. The citizens must adopt energy-saving behavior, reducing GHG emission. Similarly, people must be able to conserve water.

Saving energy and water can be performed by individual, companies and government. Some youth communities initiated a power-saving movement, such as the "turn power off for 1 hour" campaign. In addition to that, the government and business communities need to start the implementation of green building. Green building is an environmentally friendly structure with an efficient use of energy, water, and materials.

Action: Socializing energy- and water-saving behavior. Communities, government, business communities should have an awareness of and be willing to participate in conserving electricity, fuel and water; the municipal government and the business sector should start the implementation of green building.

Resilience value: Green building initiative is trying not only to reduce greenhouse gas emissions, but also the cost of building construction and maintenance. Furthermore, the initiative will be able to promote a cohesive and engaged community to reach a shared goal of a better environment.

Target location: Semarang citizens, offices and commercial buildings

Time period: Short term

Initiative owner

The municipal government, private companies (industry and commercial), NGOs, universities

Initiative supporters

Semarang PLN (state-owned electricity company), Semarang City Planning and Housing Office, Semarang Water, Energy and Mineral Resources Office, Semarang Education Office, Semarang Transportation, Communication and Informatics Office, business sector, community, community groups

C2 | Scale Up of Waste To Energy Use

Key Initiative

Ongoing

Solid waste has the potential to become an alternative energy source. There are two concepts in this idea: converting landfill waste into energy and organic waste utilization in biogas and bio digester production. The landfill waste conversion concept was initiated by the Sanitation and Landscaping Office and the organic waste utilization concept was initiated by the Environmental Office. The biogas pilot project was located close to the Jatibarang landfill.

This initiative might reduce electricity and other fuels consumption. In addition, it can also reduce the amount of urban waste. This initiative has the potential to be replicated on a household and kampong neighborhood scale, such as for the kitchen's energy source.

Action: Developing biogas and bio digester production; preparing procedures for installment; installing the biogas and bio digester in household

Resilience value: The initiative aims not only to reduce the amount of waste, but also help meeting basic energy needs. Furthermore, in the process, this initiative will be able to promote a cohesive and engaged community by inviting members of the community to participate in waste recycling program.

Target location: Areas around the Jatibarang landfill, neighborhood-based communities

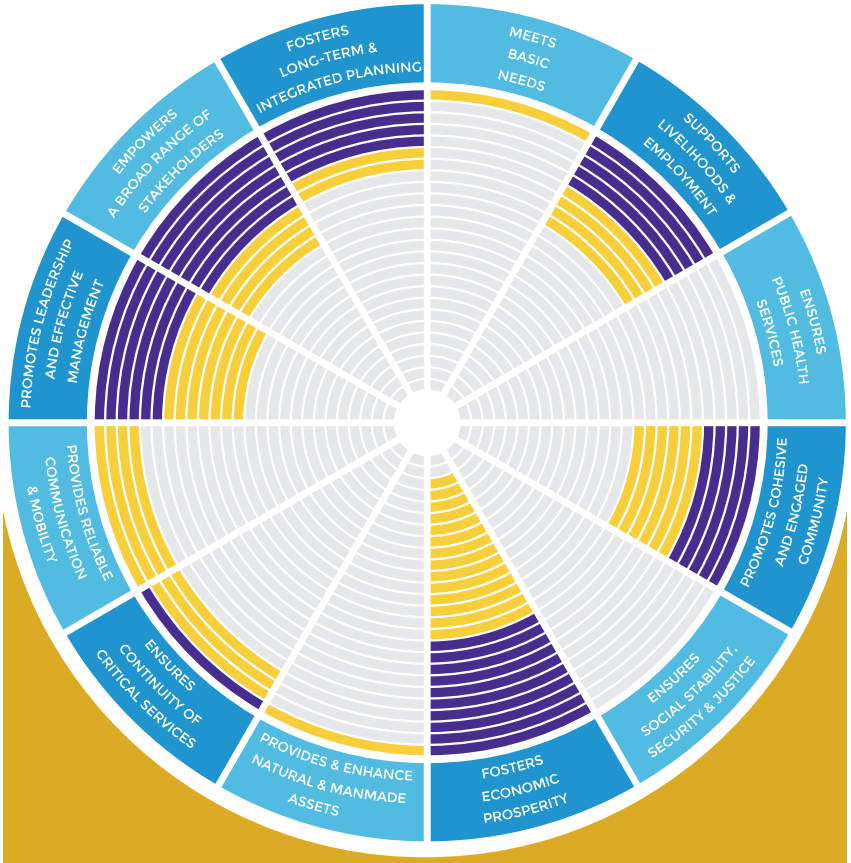
Initiative owner

Semarang Sanitation and Landscaping Office and Semarang Environmental Office, private energy companies, NGOs, universities

2nd Pillar Strategy

New Economic Opportunity

Semarang will create an economic climate that allows new opportunities to emerge


FOSTERS LONG-TERM & INTEGRATED PLANNING
MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS

Strategies and initiatives under this pillar aim to boost prosperity and improve livelihood by increasing coordination and community involvement, taking into account the strategy and leadership dimension

A PROMOTING ENTREPRENEURSHIP TO INCREASE THE COMPETITIVENESS OF TRADE AND SERVICES

B DEVELOPING ENVIRONMENTALLY-FRIENDLY AND SOCIALLY ORIENTED INNOVATIVE BUSINESSES

C STRENGTHENING MULTI-STAKEHOLDER (ACADEMIC, BUSINESS, COMMUNITY, GOVERNMENT) PARTNERSHIP TO CREATE JOB OPPORTUNITIES

What can you do?

- Visit traditional markets
- Promote Semarang products and tourism attractions
- Sort out your trash collectively in your neighbourhood

A PROMOTING ENTREPRENEURSHIP TO INCREASE THE COMPETITIVENESS OF TRADE AND SERVICES

Semarang used to have a strong industrial presence; however its economy now shifts to trade and service sector. In relation to that, the city must be able to see new economic opportunities. Semarang has a lot of potentials for local business and creative economy, such as batik production, special local food (Semarang spring rolls/*lumpia*) and milkfish-based culinary.

In order to create an advantageous business climate, it needs to be supported by infrastructure that facilitates the flow of production distribution, skill trainings to build the communities' capacity of local entrepreneurship and the expansion coverage of social security.

Also, modern and traditional markets have an important role in commodity distribution, including products of SME's products. Modern markets are more likely to survive due to better investment and managerial structure, stronger than traditional markets. Therefore, the city resilience strategy focuses on the traditional market improvement where many traders mostly come from low income background.

Initiatives :

A1 | Enhance the Capacity of SME and Creative Economy

A2 | Development of Information Center for Products and Trade

A3 | Promote E-Commerce and E-Business

A4 | Expand Social Security Coverage to Workers in SMEs

A5 | Provide Capacity Development for the Informal Sector

A6 | Rebrand Traditional Markets

A1 | Enhance the Capacity of SME and Creative Economy

Key Initiative

Advancing

The potential of SME sector and creative economy should be promoted, especially for business that focuses on the specialties in Semarang. This is consistent with the vision of Semarang as a city of trade and services. SME products include milkfish products, batik handicraft, and traditional food such as *wingko* and *lumpia*/spring rolls, traditional herbal medicines and other new innovative products.

Local products should be more promoted in anticipating the ASEAN Economic Community. Citizens should not just be consumers, but active marketers. Improving packaging and marketing quality can be encouraged to increase the attractiveness and competitiveness of their products.

Action: Doing a census of SMEs and creative economy sector; conducting a study of market needs; conduct training of packaging, marketing and managerial skill

Resilience value: This initiative will encourage the development of creative environment that can improve the local economy by inviting small businesses and low-middle income citizens to participate. This will improve the continuity of their business in Semarang, as well as increase livelihoods and employment. Moreover, it will enhance local identity and culture by encouraging unique SMEs in Semarang.

Target group:
SMEs and the actors of creative economy

Time period: Medium term

Initiative owner

Semarang Cooperative and SMEs Office, private companies, Chamber of Commerce and Industry

Initiative supporters

Semarang Industry and Trade Office, Semarang Manpower and Transmigration Office, Semarang Development Planning Office, Forum for Economic Development and Employment Promotion (FEDEP)

A2 | Development of Information Center for Products and Trade

Advancing

Trade and service sector in Semarang grows rapidly. In 2013, it contributed 28.72% to the GDP, higher than other sectors. However, the products of trade and services from the local businesses are not widely known.

Action: Developing an information center for products and trade which include a showroom/ exhibition space and if possible to cooperate with the Semarang Public Information Center.

Target group:
SMEs and creative economy sector

Initiative owner

Semarang Cooperative and SMEs Office and Forum for Economic Development and Employment Promotion (FEDEP), private companies, Chamber of Commerce and Industry

A3 | Promote E-Commerce and E-Business

Inventing

Following the growing trade and service sector in Semarang, the business marketing approach is experiencing a transition as well. The advancement of digital and internet technology has also transformed the way of doing business. Internet-based infrastructure is used more and can be more effective as a campaigning tool. The emergence of e-commerce and e-business means the local businesses in Semarang must be able to adapt.

Action: Training on digital marketing and internet-based business (can work together with the Semarang Public Information Center); developing an internet-based information center for products and trade

Target group:
business sector

Initiative owner

Semarang Cooperative and SMEs Office, Forum for Economic Development and Employment Promotion (FEDEP), Chamber of Commerce and Industry, financial institutions

A4 | Expand Social Security Coverage to Workers in SMEs

Advancing

Social security and rights for employees, such as health insurance, maternity leave and retirement, have been generally well provided in the government and formal business sector.
The government health care and social security scheme, locally known as BPJS, has encouraged formal companies to provide social security for their employees. However, the coverage of this type of social security has not reached the SME and informal sector.
This is unfortunate since workers in SMEs and informal sector are more vulnerable to the dynamic economic market. Social security is the right of every worker, but it can become a burden for the employers, especially small business owners, while social security will provide safety for the workers and in result they can be more motivated and productive.

Action:
Expanding social security coverage by socialize the importance of social security for employees and preparing an incentive mechanism for SMEs who provide social security for their workers, providing equal rights for all workers in Semarang.

Target group:
SME owners

Initiative owner

Manpower and Transmigration Office

A5 | Provide Capacity Development for the Informal Sector

Advancing

The attractiveness of street vendors as part of the informal sector is a pull factor of why labor force comes to Semarang and finds work in this sector. However, as they are largely informal, many street vendors are not registered and doing business in prohibited areas.

Through this initiative, the informal sector management can be improved without the need to eliminate street vendors. It is necessary to improve the welfare of informal workers by ensuring the stability of the sector.

In the next stage, the informal sector can be directed to move to the formal sector. Informal sector has enough potential to be encouraged and to sustain urban economic development. Business tax can increase local revenue.

Action:
Doing a census of the informal sector; rearranging the physical side of informal sector; giving training to support the productivity and improve the quality of service

Target group:
Informal economy sector

Initiative owner

Semarang Cooperative and SMEs Office, Semarang Office of Market, private companies, financial institutions

A6 | Rebrand Traditional Markets

Advancing

Local market conditions can reflect the level of economic activities in Semarang. The Semarang Office of Market is revitalizing traditional markets. However the focus is placed mainly on physical improvements, for example in Bulu and Banyumanik market. Some of these traditional markets have historic buildings and careful planning should be made when they are going to be renovated, i.e. in Johar traditional market.

Ecologically, traditional markets contribute significant waste to the city. Waste management must be addressed, both at the temporary local landfill and during the distribution to the city landfill.

Besides the physical improvement, non-physical improvement is also critical. Traditional markets are encouraged to increase their coverage to regional and national scale but this has not been done optimally. Through this initiative, the role of traditional markets will be improved. Product quality must be maintained. High quality goods can be expected to meet consumer's need in Semarang and its surrounding areas.

Action:
Conducting quality control of traded goods; developing in-house compost treatment

Initiative owner

Semarang Office of Market

B DEVELOPING ENVIRONMENTALLY-FRIENDLY AND SOCIALLY ORIENTED INNOVATIVE BUSINESSES

Semarang citizens must be encouraged to develop local businesses that have high value and fit the characteristics of the city. Local businesses may be advised to start environmentally friendly and socially conscious business. This can be separated from the local business opportunities and are integrated with daily activities. New economic opportunities must be encouraged to become an environmentally-friendly business environment and integrated with other strategies to maintain the quality of community's living area. The business environment should also be socially oriented, involving women or disable people.

Initiatives :

B1 | Promote Urban Farming

B2 | Promote Ecotourism and Edutourism Activity

B3 | Improve Performances of Waste Bank And Upcycling

B1 | Promote Urban Farming

Key Initiative

Advancing

Urban farming is still fairly new in Semarang, although some early efforts have been made. Kelurahan Krobokan is one are that has started urban farming. In other locations such as Pekunden and Tembalang, urban farming was initiated by the environmental community. However, the implementation scale of urban farming is still low. It should be more encouraged, especially on *kampung* neighborhood scale.

Action: Providing training for the community on urban farming implementation, so that people can produce high quality organic products. Urban farming concept will be introduced by converting vacant land into an urban farming area and using simple technology so that the concept can be easily carried out by the community. In addition, building engagement and cooperating with local retail shops and markets for the distribution of the harvest.

Resilience value: Besides having good impacts on the environment and increasing the amount of urban green open space, urban farming can become a new opportunity to boost local economy. The concept can be promoted cohesively by involving the community in building urban farming and manage it continuously.

Time period: Medium term

Initiative owner

Semarang Agricultural Office, agriculture companies, food companies, universities, NGOs

Initiative supporters

Semarang Environmental Office, Semarang Sanitation and Landscaping Office, Semarang Tourism and Culture Office, Semarang City Planning and Housing Office, Semarang Food Resilient Office, business sector, community groups, community

B2 | Promote Ecotourism and Edutourism Activity

Key Initiative

Advancing

The diverse physical characteristics of Semarang hold the potential in developing ecotourism and edutourism, including river basins, mangroves and dams. Local communities must be involved to improve the economy and public education. Currently, Semarang has been developing the ecotourism and edutourism at Jatibarang dam and mangroves in Tugu district.

Action:
Promoting tourism area and developing a network with the business sector. This is in line with the mission of the Semarang mayor to strengthen economy and create a supporting business climate by building on local excellences.

Resilience value:
Ecotourism and edutourism in Semarang have the potential to become a major tourist attraction from the area and beyond and increase the local revenue.

Time period: Medium term

Initiative owner

Semarang Tourism and Culture Office, tourism companies, NGOs

Initiative supporters

Semarang Environmental Office, Semarang Agricultural Office, Semarang Marine and Fisheries Office, business sector, urban and environment communities, community, community groups

B3 | Improve Performances of Waste Bank And Upcycling

Advancing

In addition to being an alternative energy source, recycled waste can be made into items that have economic value. Many *kampung* communities have established a waste bank that collects and upcycles their waste, for example *Resik Becik* in Krobokan sub-district. Besides reducing the level of urban waste production, this can improve the *kampung* environment. To further ensure business continuity, more updated training is required.

Action:
Provisioning updated training, market study for identifying the product demand, creating standardization and quality control of products

Target group:
Low-income communities

Initiative owner

Semarang Environmental Office, NGOs, Universities

C STRENGTHENING MULTI-STAKEHOLDER (ACADEMIC, BUSINESS, COMMUNITY, GOVERNMENT) PARTNERSHIP TO CREATE JOB OPPORTUNITIES

It is important to strengthen the cooperation between four major stakeholders in urban development, i.e. academics, private sector, government, and society or community to conduct an analysis of the workforce. The analysis will identify requirements of the current and future job market to help reducing the unemployment rate in Semarang and surrounding areas.

Initiatives :

C1 | Strengthen the ABCG (Academic-Business-Community-Government) Coordination for Creating Job

C1 | Strengthen of ABCG Coordination for Creating Job

Key Initiative

Inventing

Forum for Economic Development and Employment Promotion (FEDEP) is an umbrella forum of economic activities that are based on locality in Semarang. Through cooperation with FEDEP, the Semarang Development Planning Agency provided some training for SMEs. The forum has a great potential to reduce the number of unemployment in Semarang. It is expected that the benefits of the program would cover a lot of communities.

Action: Improving FEDEP and increasing the engagement and cooperation of ABCG (Academic-Business-Community-Government) to capture the real situation of job availability and the market; encouraging the forum to identify of a new strategic economic sector; collecting labor demand and supply data of fresh graduates; preparing a coordination system within ABCG

Resilience value: The initiative invites stakeholders to collaborate and share resources to achieve shared beneficial results. It supports livelihood and employment by ensuring the labor force in Semarang will be able to have a better job and income. Furthermore, it promotes leadership and effective management by coordinating multi stakeholders for a better urban life.

Target group: Labor force

Time period: Short term

Initiative owner

Semarang Development Planning Agency and Forum for Economic Development and Employment Promotion (FEDEP), private companies

Initiative supporters

Semarang City Office, high schools, universities, communities. business sectors, media, community groups

3rd Pillar Strategy

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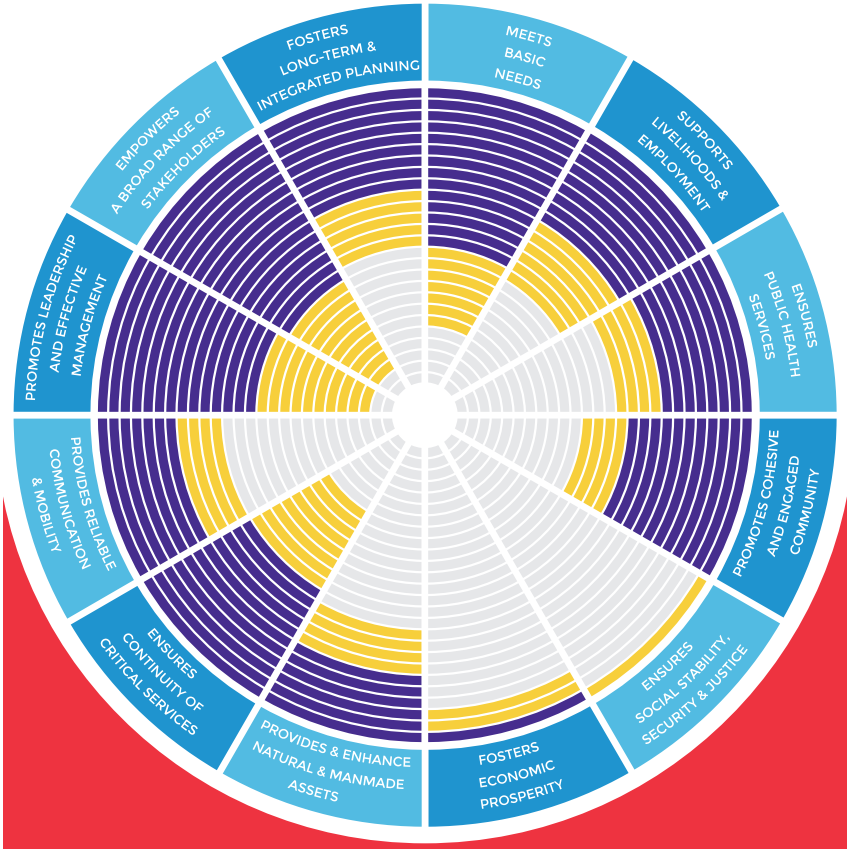
Preparedness for Disaster and Disease Outbreaks

Semarang will improve public information system and public collaboration to prepare for disaster and disease outbreak


FOSTERS LONG-TERM & INTEGRATED PLANNING
MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS

Strategies and initiatives under this pillar answer the challenge of every dimension in the blue wheel

A DEVELOPING TECHNOLOGY FOR DISASTER AND DISEASE MANAGEMENT

B ENHANCING THE CAPACITY OF STAKEHOLDERS IN DISASTER AND DISEASE MANAGEMENT

C IMPROVING COORDINATION IN DISASTER RISK REDUCTION

What can you do?

- Check mosquito larvae
- Improve knowledge on disaster risks in your area at http://bpbd.semarangkota.go.id
- Avoid using underground water

A DEVELOPING TECHNOLOGY FOR DISASTER AND DISEASE MANAGEMENT

The number of disasters increases annually. Climate change also causes more frequent outbreaks of diseases. Technology advancement can provide ways to face the rapid disasters and disease outbreaks. Thus, technology innovations that can reduce risks of disasters should be explored as soon as possible. The coordination between city stakeholders should also be improved.

Initiatives :

A1 | Raise Public Awareness on Disaster-Prone Areas

A2 | Explore Alternative Methods to Prevent Dengue Fever

A3 | Explore New Technology in Disaster Management

A1 | Raise Public Awareness on Disaster-Prone Areas

Key Initiative

Advancing

Disaster Preparedness Agency of Semarang Disaster Preparedness Agency of Semarang developed an information system that can be accessed by the public to find out about locations of disaster, but the system is not optimal. The information system covers information such as the location of landslide, flash flood, tidal flood, coastal erosion, land subsidence, dengue outbreak and fire. It is expected that public knowledge will improve with the provision of disaster information and preventive actions can be taken to minimize risks of the disaster.

Action: Providing regular information update on disasters; developing a telecommunication for disaster information (SMS gateway); providing signs for evacuation routes and emergency shelters in public areas; conducting participatory disaster mapping. This initiative is in line with the visions of the governor to build Semarang into a cyber city with integrated information, accessible to the public.

Resilience value: This initiative will provide reliable information for citizens via improved emergency communication method. Furthermore, in order to achieve resilience, stakeholders must improve their coordination. Citizens will have better readiness in facing disasters and improved sense of belonging by better understanding the place where they live.

Target location: Areas that are prone to flash flood, tidal flood and landslide, land subsidence areas

Time period: Short term

Initiative owner

Disaster Preparedness Agency of Semarang Disaster Preparedness Agency of Semarang, Semarang City Planning and Housing Office

Initiative supporters

Semarang Development Planning Agency, Sanitary and Landscaping Office, Environment Agency, Maritime and Fisheries Affair Office, Water, Mineral and Energy Resources Management Office, Health Office, BMKG, KSB, Semarang FPRB, Division of Electronic Data Management, sub-districts, kelurahan, universities, community groups, Digital Globe

A2 | Explore Alternative Methods to Prevent Dengue Fever

Advancing

In 2015, Semarang was third for the highest number for dengue incidents in Central Java. Climate change and high humidity level increase the population of *Aedes aegypti* mosquito that carries the virus. Cooperation between the Health Office, communities and NGOs resulted in the development of a program to control dengue outbreak, for example educate students in dengue fever dangerous at Kalipancur, Sukorejo and Sumurejo Sub-Districts. This initiative should be supported and improved. A dengue early warning system, preceded by modeling from the university, also exists in six sub-districts and has the potential to be improved for all districts in Semarang. Most importantly, city stakeholders must improve their coordination in order to work effectively and efficiently when facing dengue outbreak.

Action: Identifying and further implementing new technologies, such as early warning system; identifying innovations in controlling dengue outbreak, such as repellent clothing and mosquito trap

Resilience value: Improving the cooperation between universities in Semarang and conducting transfer of knowledge on disease outbreak between stakeholders. Providing responsive medical facilities and workers will ensure good public health service. Efforts in dengue prevention are closely related to the improvement of the surrounding environment.

Target location: Areas those are prone to dengue

Time period: Short term

Initiative owner

Health Office

Initiative supporters

Semarang City Planning and Housing Office, KSB, Semarang Disaster Preparedness Forum, Health Surveyor, Mosquito Larvae Surveyor Groups, universities, hospitals, puskesmas, private research and development institutions.

A3 | Explore New Technology in Disaster Management

Advancing

Semarang is currently facing more risks from both natural and anthropogenic disasters. Moreover, Semarang is divided into upper and lower area and each area faces different types of disasters. Landslide and flash flood happen in upper Semarang, while lower Semarang which includes the coastal area must face tidal flood, coastal erosion and land subsidence. Fire, however, occurs in both areas. The development of information and innovation technology has been explored, such as the Banger pilot polder project and dykes, but it still needs to be further developed and potentially scaled up.

Action: Identifying new technology which may include developing floating and stilted house method in areas that are prone to flood, scaling up intensifying vetiver grass and building ponds and pumping houses in upstream and downstream area and applying other new innovative technology.

Target location: areas that are prone to flash flood and tidal flood, landslide, land subsidence area

Initiative owner

Disaster Preparedness Agency of Semarang Disaster Preparedness Agency of Semarang, Water, Mineral and Energy Resources Management Office, Semarang Development Planning Agency, private sector, universities, Environment Office

B ENHANCING THE CAPACITY OF STAKEHOLDERS IN DISASTER AND DISEASE MANAGEMENT

Disaster and disease outbreak management cannot be separated from the capacity of stakeholders. The stakeholders' knowledge on disaster management must be improved. For example, there are communities that have inadequate understanding of disaster risks and responses to disasters.

Initiatives :

B1 | Replicate Disaster Preparedness Groups in Disaster-Prone Areas

B2 | Improve A Community-Based Sanitation System

B3 | Increase the Capacity of Stakeholders in Facing Disasters and Disease Outbreaks

Kelompok Siaga Bencana
Kelurahan Wates
Kecamatan Ngaliyan
SEMARANG
KSB WATES
KOTA SEMARANG
KSB WATES
KOTA SEMARANG

PANITIA
UP-BPBD
JATENG
Alfamas

B1 | Replicate Disaster Preparedness Groups in Disaster-Prone Areas

Key Initiative

Advancing

Semarang has 22 Disaster Prepared-Groups (KSB) in disaster-prone sub-districts, for example in *Kelurahan* of Wates and Wonosari su (Beringin watershed). KSB aims to engage people in becoming aware of the shock and stresses in their area and improving their capacity to reduce disaster risks. KSB members are representatives of the sub-district community; they are expected to have more comprehensive knowledge on local physical and social conditions.

Action: Replicate KSB in all sub-districts, training the members to prepare for the disasters that likely happen in their areas

Resilience value: It will also help growing a sense of ownership in the community by actively participating in this initiative. The initiative will also conserve the quality of the environment.

Target location: Flash flood and tidal flood-prone areas, landslide-prone area, land subsidence area

Time period: Short term

Initiative owner

Disaster Preparedness Agency of Semarang Disaster Preparedness Agency of Semarang

Initiative supporters

Semarang Development Planning Agency, Water, Mineral and Energy Resources Management Office, Semarang Meteorological Office, Community, Women Empowerment and Family Planning Agency, community groups, NGOs

B2 | Improve A Community-Based Sanitation System

Key Initiative

Advancing

Sanitation and clean water are closely related to public health as health problems can be caused by poor sanitary condition. This is especially prominent in the slum *kampung*s with low income residents. Sanitation infrastructure could become more critical after a disaster occurred. Stakeholders should integrate and coordinate to solve this challenge. Improvement of participatory-based sanitation focuses on waste management, clean water provision and post-disaster toilets. Successful implementation of these improvements is expected to reduce the impacts after a disaster strikes. Hence, public participation is necessary in order to encourage ownership and ensure a long lasting result.

Action: Giving education and training on domestic waste management; conducting a participatory construction of communal portable toilets and water purifier; improving the local government's waste management service

Resilience value: Sanitation is a critical asset; implementing this initiative will ensure continuous provision of important services to the citizens. Community-based sanitation system also enhances the participation of citizens in improving sanitation before and after disaster strikes. It is expected that this method will increase citizens' sense of ownership of the sanitation infrastructure and that it will have a long-term effect in Semarang.

Target location: Flash flood and tidal flood-prone areas, landslide-prone area, land subsidence area

Time period: Medium term

Initiative owner

Sanitary and Landscaping Office

Initiative supporters

Semarang City Planning and Housing Office, Health Office, community groups, universities

B3 | Increase the Capacity of Stakeholders in Facing Disasters and Disease Outbreaks

Advancing

It is important for stakeholders give the correct responses to disasters. Knowing what to do before disaster happens, when it happens and after it happens could minimize the impacts of disasters. Similarly, for dengue case, the knowledge of curative, preventive and rehabilitation action is crucial. This initiative is targeted to increase coordination and responsibilities between stakeholders.

Action:
Setting up a coordination forum for disasters preparedness; developing a disaster preparedness system

Initiative owner

Disaster Preparedness Agency of Semarang Disaster Preparedness Agency of Semarang, Health Office, universities, NGOs

C

IMPROVING COORDINATION IN DISASTER RISK REDUCTION

Climate change affects cities in the world significantly, including Semarang. Disasters are harder to predict, which means that it is difficult to take preventive actions. However, optimizing the role and function of each stakeholder can be a way to increase our preparedness. Coordination between stakeholders can be encouraged by preparing a contingency plan.

Initiatives :

C1 | Prepare Participatory Contingency Plan

C1 | Prepare Participatory Contingency Plan

Key Initiative

Inventing

A contingency plan is an operational standard procedure when disasters happen. The formulation of a contingency plan is expected to increase awareness of all stakeholders in facing disasters and disease outbreaks. Furthermore, contingency plan can be considered as integrated disaster management. The plan must be disseminated widely and easily accessed. The preparation levels of a contingency plan include city level and community level.

Several agencies and offices in Semarang already have a disaster management program. However, the program is not integrated. This initiative can integrate every disaster management program, avoiding any social conflict in the coordination of disaster management, related to authority and execution

Action: Preparing a participatory contingency plan that describe the details of coordination and responsibility between different agencies and offices when disasters happen

Resilience value: This initiative promotes effective management through an improved collaboration between and empowerment of stakeholders. It also promotes leadership in the mechanism of coordination, assigning implementers and decision makers. Furthermore, the initiative is expected to minimize impacts of disasters and ensure the continuity of critical services during shocks.

Time period: Long term

Initiative owner

Disaster Preparedness Agency of Semarang

Initiative supporters

Water, Mineral and Energy Resources Management Office, Semarang Development Planning Agency, Health Office, Environmental Office, Regional Office of Basin Pemali Juwana, communities, community groups, NGOs, universities

LEARNING FROM THE DUTCH

Sixty percent of the cities in the 100RC network identified flood as the major shock, while 20% identified water shortage as the stress. Too much and too little water have presented various challenges in urban life. In Rotterdam, nine cities with different water problems gathered to find solutions and explore holistic concepts in water management. By having multidisciplinary practitioners (urban designers, landscape architects, urban planners, academics and government officials), the discussion, named the Dutch dialogue, embraced an integrated approach to confront water management challenges in their cities; to live close to water and to recognize it as a central asset with a growing value. Whether the city is grappling with too much or trying to cope with too little water, there is a great opportunity to apply better integrated and cost-effective solutions that meet multiple current needs and are poised to address unknown future challenges.

The Netherlands has been coping with floods for centuries considering their country is partly below sea level. They empower the citizens to work together by supporting, inspiring and encouraging the application of water resilience concept on every stage of life from classroom education to professional training. This encourages the people to implement initiatives related to water resilience. The country is a large laboratory that is trying to help citizens, particularly the new generation so that they understand the changing environment better and lead them to achieve water literacy.

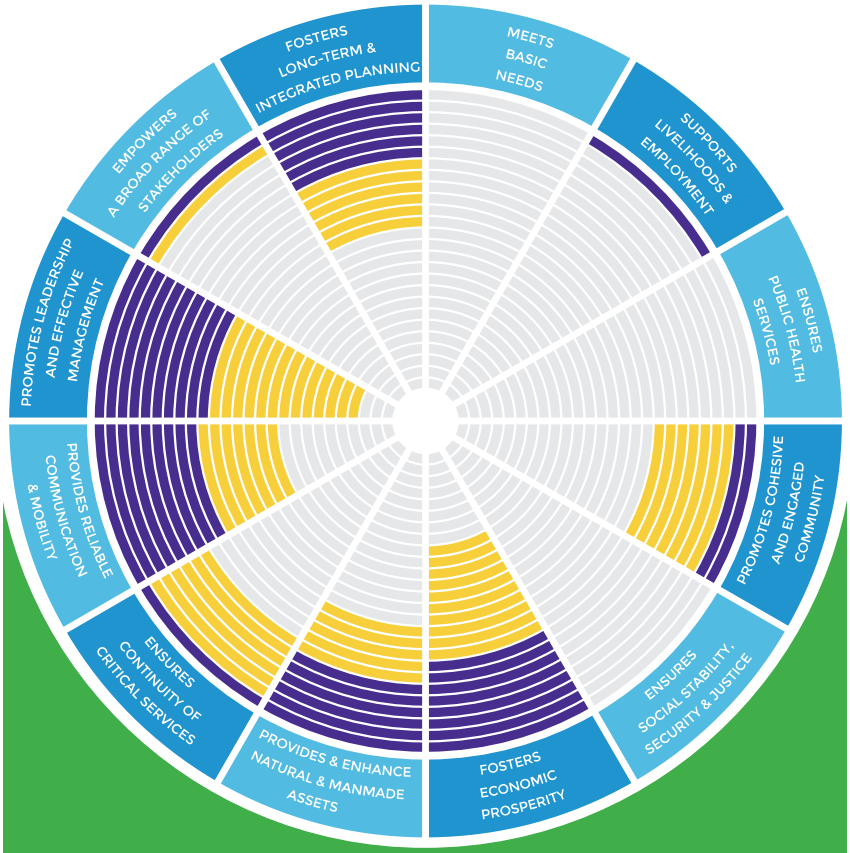
Since 2006, the Dutch government began the implementation of a project called "Room for the River". The idea was to make more room for the river to overflow, rather than building right on its banks. Also that river would no longer flow along the city, but through it instead. This created a city that is fully integrated with the water. It took 10 years for them to create a new waterfront, giving up urban and farm land. This increased the development potential and reduced the risk of damage and loss of life in the future.

Source: http://100resilientcities.org

4th Pillar Strategy

Integrated Mobility

Semarang will improve the connectivity and institutional capacity of transportation service


FOSTERS LONG-TERM & INTEGRATED PLANNING
MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
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ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
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PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
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PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS

A ENCOURAGING A CHANGE IN BEHAVIOR FROM USING PRIVATE VEHICLES TO PUBLIC TRANSPORT

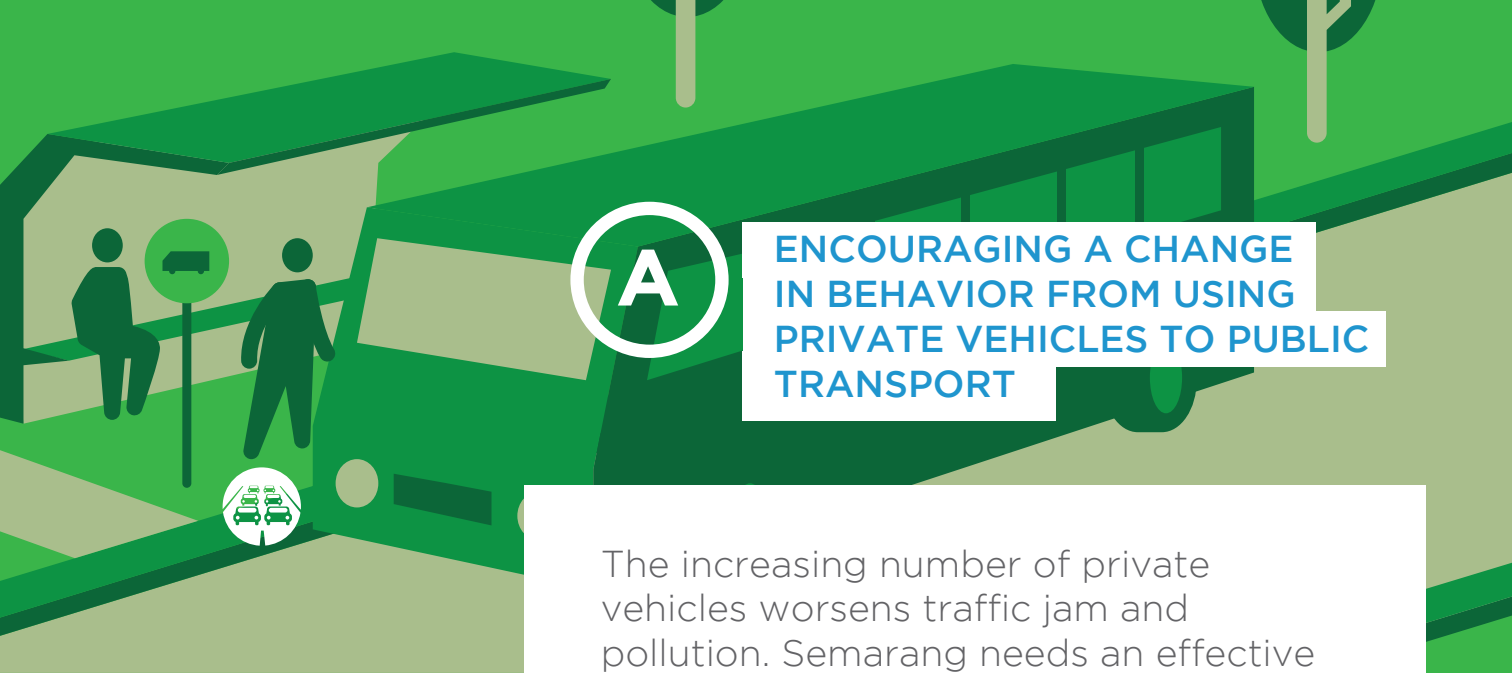
B IMPROVING COORDINATION AND INSTITUTIONAL MANAGEMENT OF PUBLIC TRANSPORT

C INTEGRATING TRANSPORTATION PLANNING

Strategies and initiatives under this pillar provides interventions to face challenges in infrastructure and environment dimension. Improvement of coordination and integration between city stakeholders is critical.

What You can do?

- Download the BRT and ATCS application to monitor traffic conditions in Semarang
- Travel together with family and friends
- Use the BRT, walk and cycle



A ENCOURAGING A CHANGE IN BEHAVIOR FROM USING PRIVATE VEHICLES TO PUBLIC TRANSPORT

The increasing number of private vehicles worsens traffic jam and pollution. Semarang needs an effective and efficient public transport regarding time, access, and tariff. It also must be environmental friendly. The provision of high quality public transport and the related facilities is expected to increase people's interest in using public transport.

Initiatives :

A1 | Optimize Intermodal Transport

A2 | Expand the Coverage of BRT Corridors and Feeder Service

A3 | Explore the Possibility of MRT Development and Its Alternatives

A4 | Introduce BRT-Integrated School Bus Service

A5 | Improve Public Transportation Facility to be More Disabled People- and Environmentally-Friendly

A6 | Improve Pedestrian and Bicycle Path

A1 | Optimize Intermodal Transport

Key Initiative

Advancing

BRT integration management has not yet been optimized. For example, BRT routes have covered transportation nodes, such as airport and station. However, the location of the bus shelters is quite far, which made it less appealing to people. The transit options between routes and with non-BRT transport are limited. The tariff is not integrated, resulting in expensive fare when transit is needed despite the distance.

Action: Exploring the possibility of an integrated route and tariff for intermodal public transport; exploring more effective locations of public transport facilities.

Resilience value: An integral and affordable transportation system helps people in doing their activities which could foster economic prosperity. In addition, it helps reducing traffic jam and improves the environment by reducing pollution. Intermodal transport system which requires a strong collaboration can foster a long-term and integrated planning.

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

Semarang Development Planning Agency, private sector, PT KAI (state-owned train company), PT Angkasa Pura (state-owned airport company), Pelindo III (state-owned port company)

A2 | Expand the Coverage of BRT Corridors and Feeder Service

Key Initiative

Ongoing

Transportation, Communication and Informatics Office is planning to add the current BRT routes into six routes. The additional routes include PRPP-Meteseh and UNNES-Diponegoro Park-UNDIP. The plan is expected to be fully implemented in two years to increase urban connectivity. Based on the current operational experience of BRT, new routes might improve the quality of BRT regarding its operational capacities and facilities. To increase efficiency, BRT must be supported by a feeder service.

Action: Exploring the efficacy of new BRT corridors and feeder service

Resilience value: Expanding public transport's coverage might reduce social isolation. It will also strengthen economic prosperity since people can have better access to their activities.

Target Location: Newly developed areas without a public transport service

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

Toll Road Regulatory Agency, Semarang Development Planning Agency, private sector, the Organization of Land Transportation Owners

A3 | Explore the Possibility of MRT Development and Its Alternatives

Advancing

Besides improving the BRT system continuously, Semarang is also exploring the possibility of MRT (Mass Rapid Transit) development. MRT development is stated in the mayor's vision. Meanwhile, principal elements of BRT such as special lane, shelters on median roads and intersection management that would have made the BRT working effectively have not been fully adopted in Semarang. Therefore, Semarang has not achieved the full potentials of BRT. It is recommended to study this issue, in addition to the MRT study.

Action:
Evaluating the current BRT; conducting a study on MRT and other alternatives

Initiative owner

Transportation, Communication and Informatics Office and private sector

A4 | Introduce BRT-Integrated School Bus Service

Inventing

Students can be classified as vulnerable group regarding mobility since they have limited financial ability to pay for transport service. They are not old enough to drive their own motor vehicles. There should be a transportation mode allocated for students, i.e. school bus. This initiative will likely have an indirect impact, reducing number of traffic accident involving students.

Action:
Identifying routes from settlement areas to education facilities; allocating some BRTs for students and it can be supported by a feeder service to increase efficiency; providing new school buses that can be conducted under a CSR program.

Target group:
Students

Initiative owner

Transportation, Communication and Informatics Office, Semarang Education Office

Initiative supporters

Save The Children (Collaboration with the Future Cities Laboratory – ETH Singapore Centre)

A5| Improve Public Transportation Facility to be More Disabled People and Environmentally-Friendly

Advancing

The design of some elements of Semarang's BRT program (i.e. shelters) could be improved to accommodate the needs of a wider range of passengers, including people with disability. This would not only increase accessibility to essential goods and services, but also have a positive effect on the environment.. There are also ongoing discussions around reforms such as fuel switching program to CNG for BRT that have to be implemented.

Action:
Evaluate the potential benefits of improvements to public transportation facilities and fuel used for BRT; and to recommend pragmatic options for overcoming implementation barriers

Target group:
Public transportation management, all Semarang citizens including people with disabilities

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

IGES (Institute for Global Environment Strategies)

A6| Improve Pedestrian and Bicycle Path

Advancing

Pedestrian and bicycle path are in poor quality and have not been used optimally. The path is interrupted, slippery; often occupied by street vendors and used for parking. This initiative aims to restore the original function of the paths by evaluating and improving the quality.

Walking and cycling campaign can help increasing people's interest to use pedestrian and bicycle path. Some communities have started to show interest, such as the Semarang pedestrian coalition (KPKS). This type of campaign needs to be supported and has the potential to be improved.

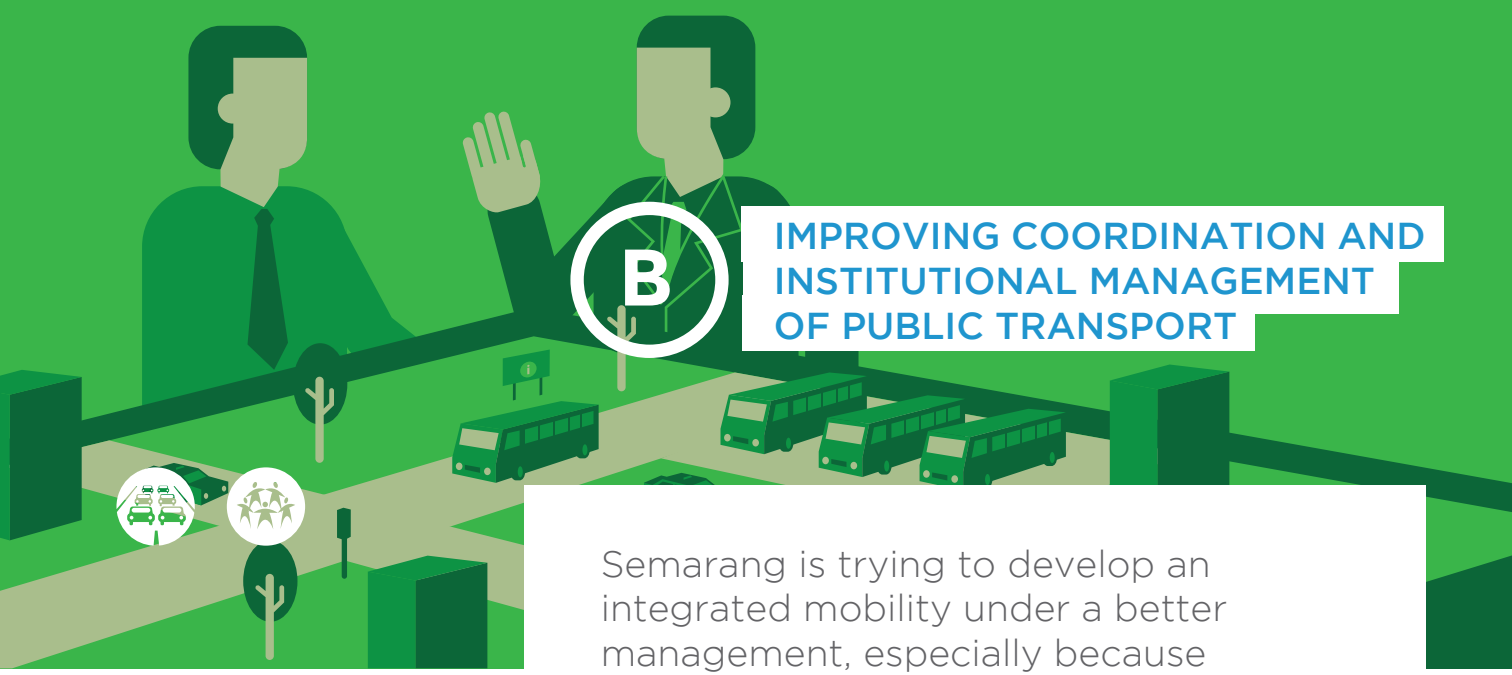
Action:
launching a walking and cycling campaign; designing pedestrian and bicycle path; conducting a participatory design evaluation of the path; coordinating between stakeholders in preparing regulations for pedestrians and cyclists

Initiative owner

Toll Road Regulatory Agency and Transportation, Communication and Informatics Office

TARIP JAUH DEKAT
PELAJAR Rp. 1.000
Trans Semarang
1010
1652 CA
09-19

PINTU



B

IMPROVING COORDINATION AND INSTITUTIONAL MANAGEMENT OF PUBLIC TRANSPORT

Semarang is trying to develop an integrated mobility under a better management, especially because transportation is a regional issue and involves various stakeholders. Currently, some public vehicles are still managed individually. It is a challenge to reach integrated mobility with an affordable cost and high quality service. The improvement of coordination and quality management is necessary.

Initiatives :

B1 | Strengthen Institutional Management of Public Transportation

B2 | Establish a Public Transport Consortium

B3 | Establish Kedungsepur Coordination Forum

B1 | Strengthen Institutional Management of Public Transportation

Key Initiative

Advancing

This initiative aims to strengthen the institutional management of public transport, therefore, a reliable public transport system can be provided. The BLU-UPTD currently manages both BRT and Mangkang regional terminal with limited human resources. The current system requires an evaluation and must considers the business plan related to the BRT expansion plan.

Coordination mechanism between the government and private sector (operator and regulator) should be clarified to ensure professionalism of BRT management. It includes a bidding process to ensure the management meets the necessary quality.

Action: Developing an improved organizational mechanism between the government and private sector in managing and operating BRT

Resilience value: Reorganizing BRT management to create a more effective system which will improve the service quality. The government will be able to provide reliable mobility and improve citizens' access to their activities.

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

Semarang BLU-UPTD (Public Service Agency-Technical Implementation Unit for Regional Agency), Semarang Development Planning Agency, private sector

B2 | Establish a Public Transport Consortium

Key Initiative

Inventing

Apart from BRT, which is managed by the local government, other public transport vehicles are managed by individuals. The individual owners of public vehicles provide a subsidy for public transport users without any assistance from the government. However, the individual ownership of many public transport vehicles complicates monitoring of many things including safety. The establishment of a public transport consortium will help organizing, overseeing the operation of traditional public transport and coordinating the integration of BRT with traditional public transport, functioning as the feeder service.

Moreover, the consortium will allow the government to subsidize individual management of public transport which will help the feeder service to have a more punctual schedule and to be safe and comfortable. This initiative can be implemented properly when the BRT institution is independent and competent.

Action: Establishing a public transport consortium that coordinates individually managed public transport vehicles

Resilience value: The consortium can achieve a safe and affordable public transport. Better quality and punctuality of public transport will help the users to reach their destinations of their activities and reduce operational costs. In addition, it will empower a broad range of stakeholders to manage public transport and improved knowledge sharing between stakeholders.

Target group: Public vehicle owners

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

Semarang BLU-UPTD, Semarang Development Planning Agency, private sector, Organization of Land Transportation Owners

B3 | Establish Kedungsepur Coordination Forum

Inventing

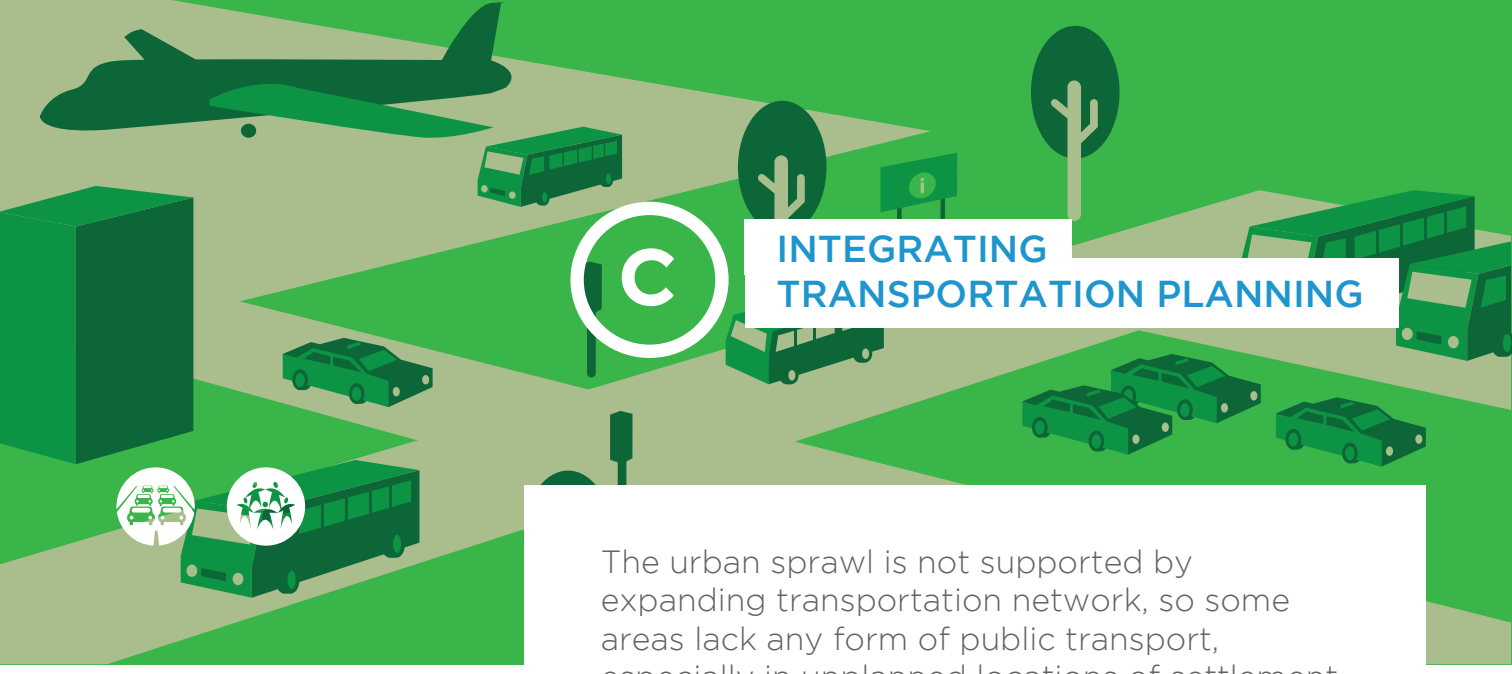
Transportation in Semarang is a regional issue that impacts the Kedungsepur area (a group of neighboring regions that include of Kendal, Demak, Ungaran, Semarang and Purwodadi). It is necessary to establish a forum for regional transportation service to discuss and coordinate the provision of regional transportation service. The upcoming challenge is the planned provision of BRT service by the provincial government. This route should be integrated to the local BRT to avoid any overlapping.

Invite the neighboring authorities and provincial government to form regional transportation forum

Target group: Kedungsepur regional authority, the management of public transport

Initiative owner

Transportation, Communication and Informatics Office and Semarang Development Planning Agency, Central Java Development Planning Agency



C INTEGRATING TRANSPORTATION PLANNING

The urban sprawl is not supported by expanding transportation network, so some areas lack any form of public transport, especially in unplanned locations of settlement, industry and commercial area. It is necessary to integrate the regional transportation master plan with the land use plan. This strategy aims to create an effective transportation planning.

Initiatives :

C1 | Intensifying Development in the Planned Growth Centers

C2 | Promote the Regional Transportation Master Plan

C3 | Improve Public Transport Access to Tourism Attractions

C4 | Improve Accessibility to Newly Developed Areas

C1 | Intensifying Development in the Planned Growth Centers

Key Initiative

Advancing

To prevent future urban sprawls, new development should be directed to the planned growth center stated in the Semarang spatial plan by considering high risk areas. Provision of new transportation service can be focused in these areas. The new transportation service can be built effectively with less cost. Moratorium for development in non-allocated areas is encouraged to reduce conversion of land use.

Action:
Directing new development to planned growth center in accordance to the city's spatial plan

Resilience value: The initiative will have a big impact in reducing people's movement which will lead to less traffic jam. Furthermore, the city can reduce the rate of urban sprawling and eventually decrease the need to construct infrastructure and enable a more affordable transportation service for the citizens. It could improve welfare by significantly decline the operational transportation costs. In a bigger economic context, having less transportation time can increase the income.

Target location:
Allocated development areas

Initiative owner

Semarang Development Planning Agency and Semarang Planning and Housing Office.

Initiative supporters

Digital Globe

C2 | Promote the Regional Transportation Master Plan

Advancing

Semarang is growing to its neighboring regions in the Kedungsepur area. Most citizens live in the hinterland and work at Semarang city center. There is hence a demand for a regional transportation system, which consider newly developed areas, as well as existing spatial plan.

The regional transport master plan for regional and integrated development has not developed yet. There is also a need for a better coordination and sharing responsibilities across-cities within the region. A platform to strengthen regional coordination among Kedungsepur governments is required.

Action:
Coordinating between Kedungsepur authorities and the provincial government in preparing the regional master plan

Resilience value:
Regional coordination will generate an effective transportation service plan and ensure the regional transport link. In addition, it will improve stakeholder capacity by preparing the plan. The good transportation performance, especially the regional one, will boost economic prosperity as distribution route from and to the city will be smooth.

Initiative owner

Transportation, Communication and Informatics Office, Ministry of Transportation

Initiative supporters

Toll Road Regulatory Agency, Semarang City Planning and Housing Office, Kedungsepur authorities, private sector, IGES, Digital Globe

C3 | Improve Public Transport Access to Tourism Attractions

Inventing

The transition of strategic sector from industry to trade and service also includes the development of tourism sector. Semarang has tourism destinations that attract both domestic and non-domestic tourists, including religious places and agro and cultural areas, such as the Old Dutch quarter, Watu Gong temple and Lawang Sewu. These attractions should be supported by easy access.

Action:
Exploring opportunities of public transport alternatives; identifying opportunities of integrated public transport; providing tourism attraction signs

Resilience value: This initiative can increase the number of tourists and the city income. This initiative can also minimize traffic jam and pollution from private vehicles.

Initiative owner

Transportation, Communication and Informatics Office

Initiative supporters

Tourism Agency, Toll Road Regulatory Agency, Semarang Development Planning Agency, Semarang City Planning and Housing Office, private sector

C4 | Improve Accessibility to Newly Developed Areas

Advancing

The city is growing to the city outskirt, such as Tembalang and Pedurungan district due to the higher cost in the city center. Citizens prefer to live in these areas. New settlements grow with a sprawling pattern and not supported by good accessibility. This initiative aims to increase mobility, especially in areas without a public transport service as citizens are entitled to public service. However, transportation service and its routes must be carefully designed to enable the development of effective infrastructure and service planning.

Action:
Developing the possibility of new routes and transportation nodes that are integrated to the newly developed areas; exploring a smart feeder system which allows minimum investment and integration with the BRT system; exploring new public transport route possibilities to connect the city center to the developed areas

Initiative owner

Semarang Development Planning Agency and Transportation, Communication and Informatics Office

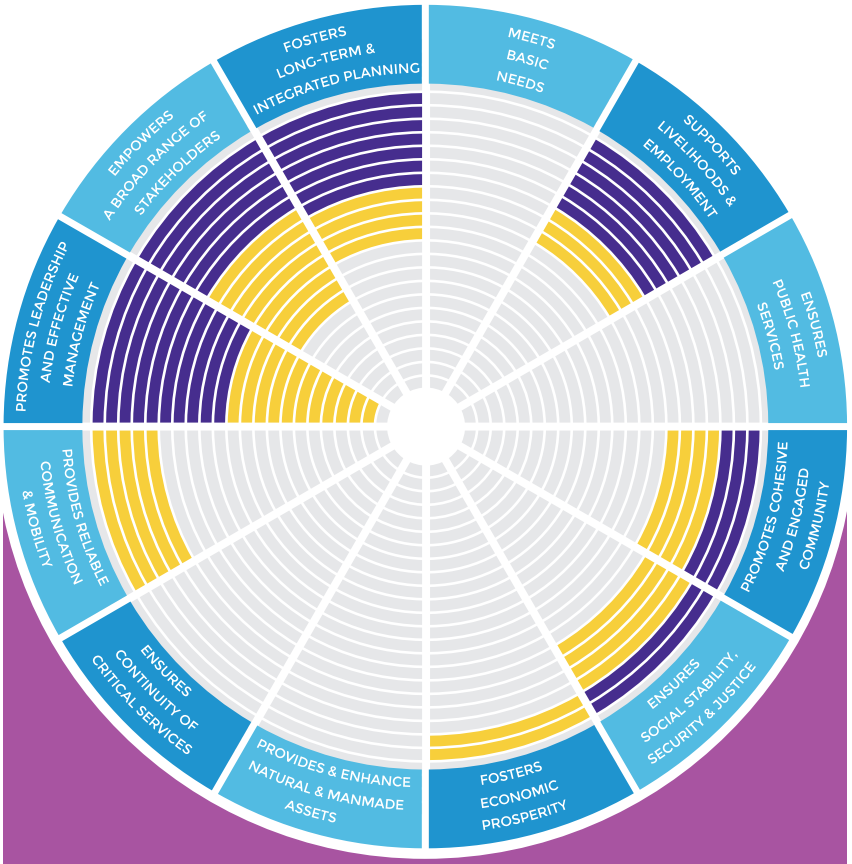
Initiative supporters

Digital Globe.

5th Pillar Strategy

Transparent Public Information and Governance

Semarang will increase information transparency and governance to improve the quality of the program and its performance


MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
PROMOTES COHESIVE AND ENGAGED COMMUNITY
ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
FOSTERS ECONOMIC PROSPERITY
PROVIDES & ENHANCE NATURAL & MANMADE ASSETS
ENSURES CONTINUITY OF CRITICAL SERVICES
PROVIDES RELIABLE COMMUNICATION & MOBILITY
PROMOTES LEADERSHIP AND EFFECTIVE MANAGEMENT
EMPOWERS A BROAD RANGE OF STAKEHOLDERS
FOSTERS LONG-TERM & INTEGRATED PLANNING

Strategies and initiatives of this pillar give answer to challenge in strategy and leadership dimension which becomes foundation in building resilient city

A OPTIMIZING MUSRENBANG (DEVELOPMENT PLANNING FORUM) IN THE PLANNING PROCESS

B IMPROVING THE INTEGRATION OF PLANNING AND CITY BUDGETING

C OPTIMIZING THE GOVERNMENT'S COORDINATION OF DATA INTEGRATION AND PUBLIC INFORMATION

What You can do?

- Find the *Musrenbang* schedule and location
- Monitor government performance at www.semarangkota.go.id
- Visit www.100rcsemarang.org and follow FB Semarang Tangguh and Twitter @resilientsmg

A OPTIMIZING MUSRENBANG (DEVELOPMENT PLANNING FORUM) IN THE PLANNING PROCESS

Musrenbang is a development planning forum that uses participatory approach. *Musrenbang* is required by law to be conducted on every government level, i.e. from neighborhood, to sub-district and district and ultimately on municipal level. However, the implementation of this forum is not effective as it is currently limited by time and communal participation.

Initiatives :

A1 | Improve Mechanism for Pre-*Musrenbang*

A2 | Increase Accessibility to E-*Musrenbang*

A1 | Improve Mechanism for Pre-*Musrenbang*

Key Initiative

Advancing

Musrenbang as a participatory budgeting forum has a strict and limited schedule. There are only two to three months to conduct stakeholder meetings on every administrative level, from the neighborhood to the municipal level. The time limitation is a challenge to conduct a good participatory process and propose high quality programs. The citizens also tend to have a wish list during Musrenbang. It is usually focused on neighborhood-scale infrastructure that affects them directly such as the sidewalk pavement in their area. The citizens must be made aware of the overall visions and strategy of the city so they can provide a relevant and better proposal that can affect city widely.

To better improve the Musrenbang, there should be a series of pre-Musrenbang. They can support the compulsory Musrenbang by providing additional forums for stakeholders. This can increase the participation of all citizens, including elderly, disabled and poor people. Both the Musrenbang and pre-Musrenbang should also be supported by properly trained and skilled facilitators.

Therefore, the Semarang Development Planning Agency needs to prepare a guideline of improved Musrenbang process and provides intensive technical assistance to facilitators in order to conduct an effective Musrenbang.

Action: Informing citizens of the city's vision and Musrenbang process; promoting and supporting wider implementation of pre-Musrenbang; training for trainers for Musrenbang facilitators

Resilience value: A well designed and executed Musrenbang can improve the quality of city development program. It also promotes cohesiveness and increases the sense of ownership of local citizens by actively participating in development programs. Furthermore, it will also improve communication between the government and public, and eventually reduce social conflict.

Target group:
Semarang citizens, Musrenbang facilitators

Initiative owner

Semarang Development Planning Agency

Initiative supporters

Neighborhood, sub-districts, districts, city agencies and offices, private sector

A2 | Increase Accessibility to E-Musrenbang

Advancing

Musrenbang needs to be supported by an electronic information system for enhancing the effectiveness of recapitulation and prioritization of proposals. In addition, this initiative improves the transparency of information that allows the public to monitor development process in the city, including improving effectiveness of budget use.

However, the current system of E-Musrenbang can only be accessed by the government. People should be able to access it as well so they will be informed about selected programs and participate actively in supporting and monitoring the programs.

Action:
Extending access of E-Musrenbang to the public

Initiative owner

Semarang Development Planning Agency

Initiative supporters

Electronic Data Management Division

LEARNING FROM PORTO ALEGRE

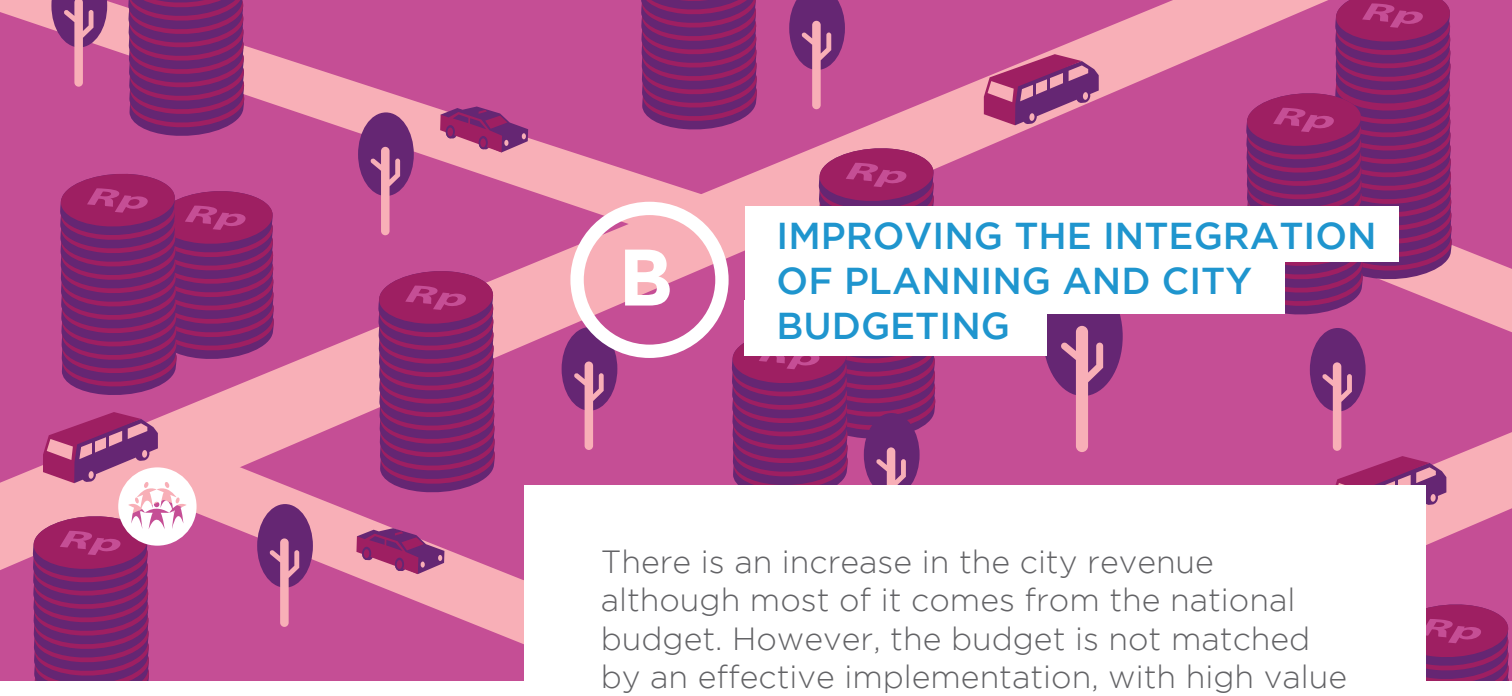
Rapid population growth in Porto Alegre resulted in urban challenges. Housing need pushed the population to occupy every available space in the city, even without infrastructure and property right. Conservation areas were turned into new residential buildings, which created a dangerous situation as some parts of the areas are prone to flood and landslide. About 13.7% of the total population lives in this area. Basic services such as electricity, clean water, sanitation, waste collection and public transport cannot be provided easily. However, the major challenge is the ambiguous regulation. The administration process is ineffective and inefficient, creating a complex situation. Moreover, it is difficult to create a dialogue between different sectors that are involved in the development process, resulting in lack of trust and cooperation.

In solving this issue, Porto Alegre established a working group that included multi-background stakeholders to build an urban resilience plan that identified risk areas and educated and alerted residents. One of the strategic objectives to achieve a resilient Porto Alegre was to have local governance that promoted resilience in every action and to design a participatory budget that contributed to the increased resilience of the city.

Porto Alegre is known as the pioneer on participatory budgeting. By applying resilience perspective in participatory budgeting, the city will improve social cohesion and strengthen people's understanding of resilience. The goal is to create and implement the Index Development of Resilience Urbana (IDRU) in an action management model for Porto Alegre and increase budget 10% from current index; 59.4 points and also invest at least 10% of the annual budget for resilience. This goal requires a transparent implementation and control mechanism.

Transparency will enable communication between stakeholders and encourage participation which in return will affect resilience significantly and reduce losses and damage.

Source: http://100resilientcities.org



B

IMPROVING THE INTEGRATION OF PLANNING AND CITY BUDGETING

There is an increase in the city revenue although most of it comes from the national budget. However, the budget is not matched by an effective implementation, with high value of unspent budget at the end of year. This reflects the weakness in the management of human resources. Underspent budget equals not optimized service for the citizens. The encouragement of the integration of planning and city budgeting can address this issue. It also requires some improvement in leadership.

Initiatives :

B1 | Improve the Capacity of City Planning and Budgeting Personnel

B2 | Integrate Planning and City Budgeting

B3 | Improve the Documentation and Publication of City Program

B4 | Improve Budget Administration, Monitoring and Evaluation

B1 | Improve the Capacity of City Planning and Budgeting Personnel

Key Initiative

Advancing

Planning and city budgeting play an important role in determining the quality of city programs. The effectiveness and quality of program implementation depend on the quality of the planning and city budgeting.

It is necessary to provide regular training and technical assistance for government officials to arm them with better knowledge in managing the city budgeting process from the start up to the evaluation. The training and technical assistance includes managing, monitoring and evaluation. The management training is required in order to prepare the government

Action:
Regular training, technical assistance and evaluation, involving some national institutions. It will motivate government to ensure their job quality.

Resilience value:
The regular training will improve the government's capacity and prepare them to be more responsive to new challenges. Qualified personnel will lead to a better strategy planning and foster a long-term integrated planning.

Target group:
Local government

Initiative owner

Regional finance agency

Initiative supporters

Semarang Development Planning Agency, universities, national training institutions

B2 | Integrate Planning and City Budgeting

Key Initiative

Advancing

Internal communication between all city agencies and offices must be improved to harmonize city budget planning. It requires having representatives from all city agencies and offices. Coordination between different agencies and offices is part of efforts to achieve the city's vision and avoid any abuse of authority and encourage resource sharing. Citizens' input should be considered in planning and city budgeting.

Integrated information system should include a citizen report mechanism. This system will encourage a good coordination between stakeholders. Citizen report mechanism has been developed by platform partner Ushahidi working together with Hysteria, a local community that deals with city issues. It has a potential to be integrated into the current information system developed by the local government.

Action:
Strengthening the local government forum; developing an online information system on planning and city budgeting; developing a filter platform of citizen report

Resilience value:
The improvement in the coordination will encourage integration between stakeholders and enable resource sharing. Integrated planning that implemented properly in the city will ensure people's wellbeing, social and economic stability and better living quality.

Target group:
All city agencies and offices

Initiative owner

Semarang Development Planning Agency

Initiative supporters

City Public Relation Division, Electronic Data Management Division, Hysteria

B3 | Improve the Documentation and Publication of City Program

Advancing

Citizens must be well informed on their tax allocation in public service. Transparency and accountability will improve government performance. Annual government program should be socialized to the citizens regularly, for example every four months. The information is not limited to the type of program, but also budget and details such as physical design if it is related to construction. Thus, citizens can participate in the monitoring mechanism.

This initiative requires coordination between all city agencies and offices, and it is possible to involve platform partners. This initiative can be expanded by collaborating with provincial and national government in order to have integrated monitoring mechanism, minimizing social conflict.

Action:
Collecting, identifying and socializing programs in Semarang

Target group:
Semarang citizens

Initiative owner

Semarang Development Planning Agency, City Public Relation Division

B4 | Improve Budget Administration, Monitoring and Evaluation

Advancing

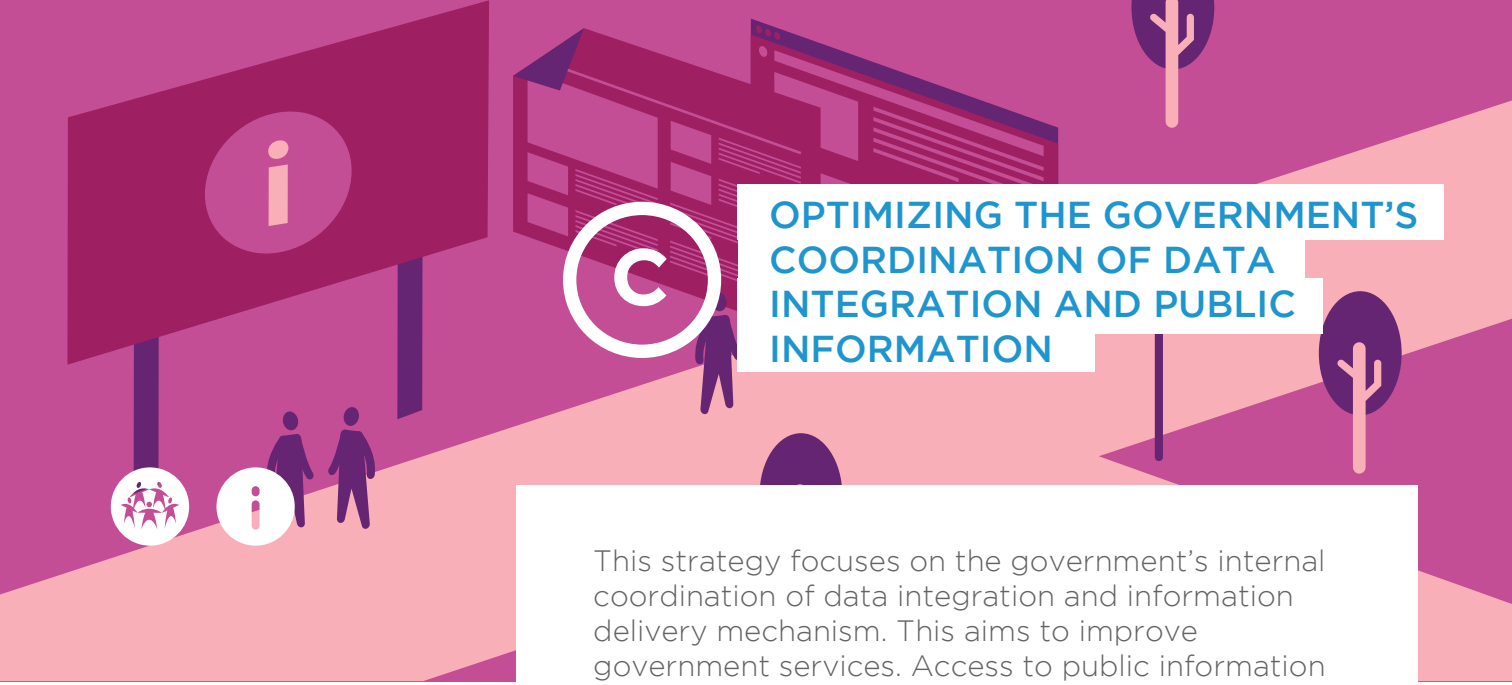
Improvement of monitoring system is required to ensure a more effective budget performance and avoid a lower target. Sanction mechanism for programs fail to be implemented properly or reward mechanism for well-performed city agencies can be arranged. For example, improving the quality of human resources is important and the Education Office allocates a large portion of the city budget. However, the implementation and budget spending are not optimal. Encouraging the stick-and-carrot mechanism can help city agencies to be more selective in allocating program and to better motivate them.

Action:
Developing a sanction mechanism for programs failed to be implemented properly and provide rewards for city agencies with good performance

Target group:
All city agencies and offices

Initiative owner

Semarang Development Planning Agency



OPTIMIZING THE GOVERNMENT'S COORDINATION OF DATA INTEGRATION AND PUBLIC INFORMATION

This strategy focuses on the government's internal coordination of data integration and information delivery mechanism. This aims to improve government services. Access to public information is the right of citizens. This allows citizens' participation and will help them to face shocks and stresses. The information includes subjects such as permit process. Comprehensive public information will ensure transparency, as well as ensure the permit given will result in negative consequences.

Initiatives :

C1 | Increase the Quality and Capacity of City Information System

C2 | Enhance the Performance and Utilization of Internet-Based Participatory Reporting

C3 | Improve Public Information on City Permit Process

C1 | Increase the Quality and Capacity of City Information System

Key Initiative

Advancing

Semarang has PPID structure that is coordinated by the Regional Secretary Office and involves representatives of all agencies and offices. A regular meeting and coordination forum should be held to prepare mechanism details on integrated data collection, as well as citizen reports. The forum needs to have a more detailed explanation on how to integrate public information, considering the current one is still minimal. This forum enhances the already established PPID and improves the effectiveness of information delivery mechanism.

Action:
Conduct a regular coordination forum for data and information management; improving reporting procedures in city administration

Resilience value:
Transparent information and documentation will improve the sense of ownership of the citizens to the city. It will improve communication between the government and public. Furthermore, it can promote cohesiveness and citizens can participate in the development program planned by the local government. Transparency will also encourage government to have a better leadership and more effective management.

Target group:
Semarang citizens

Initiative owner

Semarang Information and Documentation Managing Officers (PPID), universities

Initiative supporters

All agencies and offices, communication companies

C2 | Enhance the Performance and Utilization of Internet-Based Participatory Reporting

Advancing

The local government developed a digital information system by building a website for every agency and office that will enable the citizens to easily access all information about city development. Semarang is also keen to progress into becoming a smart and cyber city. The mayor has also initiated an online reporting platform.

However, some of these websites are often hacked and have problems due to their limited capacity. The transition towards digital system requires capacity improvement of both the system and server. This will accommodate all relevant information. It is also recommended to improve the website's security.

Action:
Increasing the capacity of city websites and server; enhancing the city website's security; integrating the website with citizen reporting features

Resilience value: This initiative strengthens information plan and prepares Semarang facing the digital world. Transparent information that is accessible by everyone will lead to better urban condition. For, example, citizens can report a crime, which means the law can be enforced and the crime can be reduced; citizens can report environmental damages and this can reduce accidents and disaster impacts. This initiative can raise awareness since citizens can participate actively in creating a better place to live.

Target group:
Semarang citizens

Initiative owner

City Public Relation Division, Electronic Data Management Division

Initiative supporters

Universities, Semarang Development Planning Agency, all agencies and offices

C3 | Improve Public Information on City Permit Process

Key Initiative

Inventing

Semarang Permit and Capital Investment Agency has commissioned a service center that provides information on city permit process. This information must be disseminated more widely through websites, social media and traditional media. Clear information will help the community to understand permit requirements so they can proceed with the application more effectively.

Currently, it is not possible to make all permits online and only limited numbers of permit are online. The development of online system will allow people to apply a permit from anywhere and at any time and this will reduce process time. Simple permit process will allow more investors to come to Semarang and enhance city development. In addition, the system ensures information transparency.

Action:
Developing an online permit system

Resilience value:
Expanding development opportunities by attracting more investors while enforcing the requirements to prevent negative consequences. Permit tax can increase the city income. However, it should be supported by improved capacity and coordination of stakeholders in approving permits and following the land use plan. This effort can improve the leadership and strategy in Semarang.

Target kelompok:
Semarang citizens

Initiative owner

Semarang Permit and Capital Investment Agency

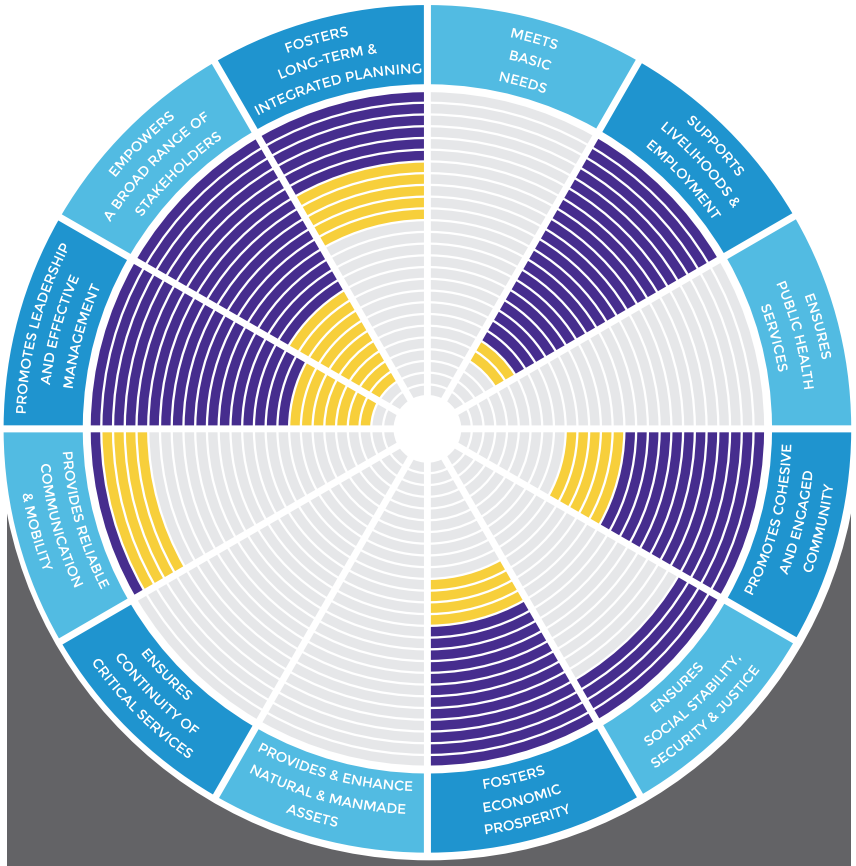
Initiative supporters

Semarang Development Planning Agency, P3KM, Digital Globe

6th Pillar Strategy

Competitive Human Resource

Semarang will connect the citizens to new skills and knowledge


MEETS BASIC NEEDS
SUPPORTS LIVELIHOODS & EMPLOYMENT
ENSURES PUBLIC HEALTH SERVICES
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ENSURES SOCIAL STABILITY, SECURITY & JUSTICE
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EMPOWERS A BROAD RANGE OF STAKEHOLDERS
FOSTERS LONG-TERM & INTEGRATED PLANNING

Strategies and initiatives under this pillar is expected to improve people's prosperity and life. With a good coordination between city stakeholders, the leadership dimension, which is the basis of the city development can be strengthened

A PREPARING THE WORKFORCE FOR THE CURRENT JOB MARKET

B PROMOTING THE VALUE OF PURSUING HIGHER EDUCATION QUALIFICATIONS

C IMPROVING NON-FORMAL EDUCATION

What can you do?

- Improve your capacity by visiting library and information center
- Monitor education service that is provided by the local government
- Report dropout students to the local government

A PREPARING THE WORKFORCE FOR THE CURRENT JOB MARKET

Semarang has a higher unemployment rate than the provincial and national level. One cause is the skill gap between job seekers and job requirements. Semarang is also changing their economic direction to trade and service sector, while industrial area migrated to the outskirt. Semarang workforce must be ready and become more responsive in facing this situation. They need to be aware of market needs and required skills set by the employers. The other issue is the workforce capacity. Most job seekers are high-school graduates or lower. Low qualifications create less competitive workforce in Semarang. Therefore, workforce capacity must be improved.

Initiatives :

A1 | Establish Career Centers

A2 | Align Education and Training with Labor Demand

A3 | Provide Vocational Training for Elementary and Junior High School Graduates

A1 | Establish Career Centers

Key Initiative

Inventing

An online or offline career center which can be accessed easily will help connecting job seekers to institutions in need of labors. Data update must be conducted regularly working closely with the business sector.

Labor force is a regional issue. Most labor force in Semarang is based in the hinterland, although some people living in the center work in the outskirt. Hence, information on career opportunity has to be collected from the city and its surrounding areas and provide more working opportunities.

Action:
Developing an online database of employment including job opportunities and information on job seekers

Resilience value:
Integrated career centers can decrease the number of unemployment in Semarang. In addition, it can reduce crime and other indirect negative social impacts.

Target group:
Job seekers, business owners

Initiative owner

Semarang Manpower and Transmigration Office

Initiative supporters

Private sector, universities, private companies

A2 | Align Education and Training with Labor Demand

Inventing

Semarang Education Office should prepare a roadmap of future employment opportunities. This will prepare graduates to the working world. By using employment market study and the results of stakeholder coordination meetings, the strategic economic sector can be identified. Then, training institutions can provide training, especially specific skills that meet qualifications of industry sector. This initiative could be coordinated by Semarang Manpower and Transmigration Office.

In addition, career sessions or seminars for high school students can also be provided. This is important since the early years of high school can provide an overview of the students' future and it can increase students' motivation in planning their future. Representatives from both business sector and academics should be invited to give a clearer picture to the students.

Action:
Providing consultation sessions or seminars on future career and higher education; providing training according to what the market needs for high school students.

Target group:
Labor force, high school students.

Initiative owner

Semarang Education Office and Semarang Manpower and Transmigration Office

Initiative supporters

Semarang Education Office, Community, Women Empowerment and Family Planning Agency, Central Java Education Office, private sector, universities, NGOs, Save The Children

A3 | Provide Vocational Training for Elementary and Junior High School Graduates

Advancing

The shifting trend towards trade and service sector requires the workforce to have a higher qualification. Unemployment percentage of elementary and junior high school graduates tends to decline. However, the number is still quite high, above 30% in 2013. Most of these people work in the informal sector due to their limited skills.

This initiative attempts to help elementary and junior high school graduates who are not able to continue their education. Based on age, they are in the active work force category. Skill training based on the economic trend can be provided, which then provide them with more employment options.

Action:
Training and technical assistance based on the market needs, work ethic training

Target group:
Graduates of elementary school and junior high school

Initiative owner

Semarang Manpower and Transmigration Office, Community, Women Empowerment and Family Planning Agency

Initiative supporters

NGOs, Save The Children, private companies

B

PROMOTING THE VALUE OF PURSUING HIGHER EDUCATION QUALIFICATIONS

Most of the labor force in Semarang is high school graduates. The elementary and junior high school graduate number is also significant. Meanwhile, the number of labor force with a bachelor's degree and diploma qualification is low. The condition requires an improvement in the education quality of Semarang citizens. This strategy aims to help students in anticipating future challenges.

Initiatives :

B1 | Increase Access to Scholarships

B1 | Increase Access to Scholarships

Key Initiative

Advancing

The Semarang Education Office is trying to help people with low income to be able to do the 9-years compulsory education. The target group is low-income people with good academic grades. The selection process of scholarship recipients should be informed widely and transparently in order to ensure it goes to the right people. This initiative must be followed by integrated monitoring and evaluation system.

Meanwhile, the percentage of college graduates, both undergraduate and diploma, is relatively low and stagnant despite the numerous scholarship programs from the government, private sector and foundations. Information on scholarships should be widely spread to high school students in their first year, giving time for the application preparation. Information on scholarship should be centrally managed by the Semarang Education Office and can be easily accessed by students online.

Action: Developing a scholarship database; holding a scholarship fair; developing a direct scholarship system such as "foster parent" program

Resilience value: widely spread scholarship information will give more options and opportunities for students from various backgrounds to improve their capacity. Furthermore, capacity improvement can help them to gain employment and lead to better livelihoods and wellbeing. A good access to education will empower a broad range of stakeholders to create a resilient city.

Target group: elementary to high school students, especially the ones who come from a low-income family

Initiative owner

Semarang Education Office

Initiative supporters

Division of Electronic Data Management, foundation, universities and private sectors, Ministry of Research, Technology and Higher Education, University

C IMPROVING NON-FORMAL EDUCATION

The capacity of human resources can be measured by the quality of education. Good education system could provide productive and qualified labor. Most of Semarang citizens are high-school graduates or lower, which means there should be alternative ways to continuously improve their skills. Education does not only come formally, but it can also be obtained outside the formal system. This will enable people who do not have access to the formal system to build their capacity and maintain their skills.

Initiatives :

C1 | Promote continuous education service for people of all ages

C1 | Promote continuous education service for people of all ages

Key Initiative

Advancing

Providing training and technical assistance for people in sub-districts and districts of Semarang, and “smart house” and library will encourage them to always build their capacity more. Smart house is a learning hub on the neighborhood level where people can gather and learn from the available shared materials, such as books.

By providing books at the “smart house” and library, people will have access to information and knowledge. It is expected that the reading interest can be increased and eventually achieve capacity improvement of Semarang citizens. The “smart house” and library development can be conducted by different levels of government, through private sector’s CSR program and local community, while the facility can be managed by the city to allow book rotation system.

Action:
Developing “smart house” and library and providing technical assistance by students and volunteers

Resilience value:
Good education service for people of all ages will encourage them to always improve their capacity and be more ready to face challenges. The side advantage of this initiative is improved social cohesion by placing the facilities on the neighborhood level.

Target group:
Sub-districts and *kelurahan* in Semarang

Initiative owner

Semarang Education Office

Initiative supporters

Office of Library and Regional Archives, sub-districts and *kelurahan* in Semarang, universities

N PERPUSTAKAAN
AWA TENGAH

REALIZING RESILIENT CITY

Semarang is still facing many urban challenges before it can be resilient. The key to strengthen our resilience is by building our capacity. It will only be successful with the participation of everyone.

This document acts as the initial plan to strengthen our city resilience and also in line with the Semarang mid-term and long-term development plan. The CRS enriches the city's efforts in building resilience by creating multiple resilience benefits from each initiative.

This city resilience strategy is an ambitious plan. Urban challenges are increasing in number and business-as-usual efforts cannot manage these unprecedented challenges. The identification of these challenges is a result of a thorough and inclusive process which captured stakeholders' concern and aspiration.

We will work on meeting the water and energy demand in a sustainable manner, creating business climate for new opportunities, preparing for disaster and disease outbreaks better, integrating our mobility system, increasing transparency of public information and governance as well as increasing the competitiveness of our human resources. Therefore, Semarang can achieve its adequate security, efficient mobility and good capacity.

ACTION PLANNING

To further implement our resilience building, together with the CRO, the working groups could safeguard the implementation of our initiatives. In the following months, more detailed action plan will be prepared. In parallel, the scoping of work with potential Platform Partners is initiated. During the strategy development process, initial listing of potential platform partners has been listed for each pillar strategy. The detailed scoping will begin by organizing workshop on New Economic Opportunities by the end of 2016.

The monitoring and evaluation mechanism should also be regulated under guidance from the Resilience Steering Committee. Taking into account of our resilience assessment and diagnostic study, the early assessment which adopted the CRF can serve as the baseline study for the resilience status. This will guide our assessment for future interventions in building city resilience as well as to help adjust and regularly update our strategy.

The regular update is planned to follow the five year mid-term planning cycle, similar with the current CRS. Therefore, the future CRS will also has the great opportunities to be streamline and complement the overall city development strategy.

MOVING TOGETHER FOR SEMARANG RESILIENCE

Ideas and initiatives in this strategy are expected to inspire the city government, citizens, business sector and all elements in Semarang in acknowledging urban challenges and taking part in achieving a resilient city.

Let’s move together to build Resilient Semarang!

ACKNOWLEDGMENT

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THE CONTRIBUTORS ON 100RC-SEMARANG SOCIAL MEDIA

THE WINNERS AND PARTICIPANTS OF 100RC BLOG AND TWITTER COMPETITION

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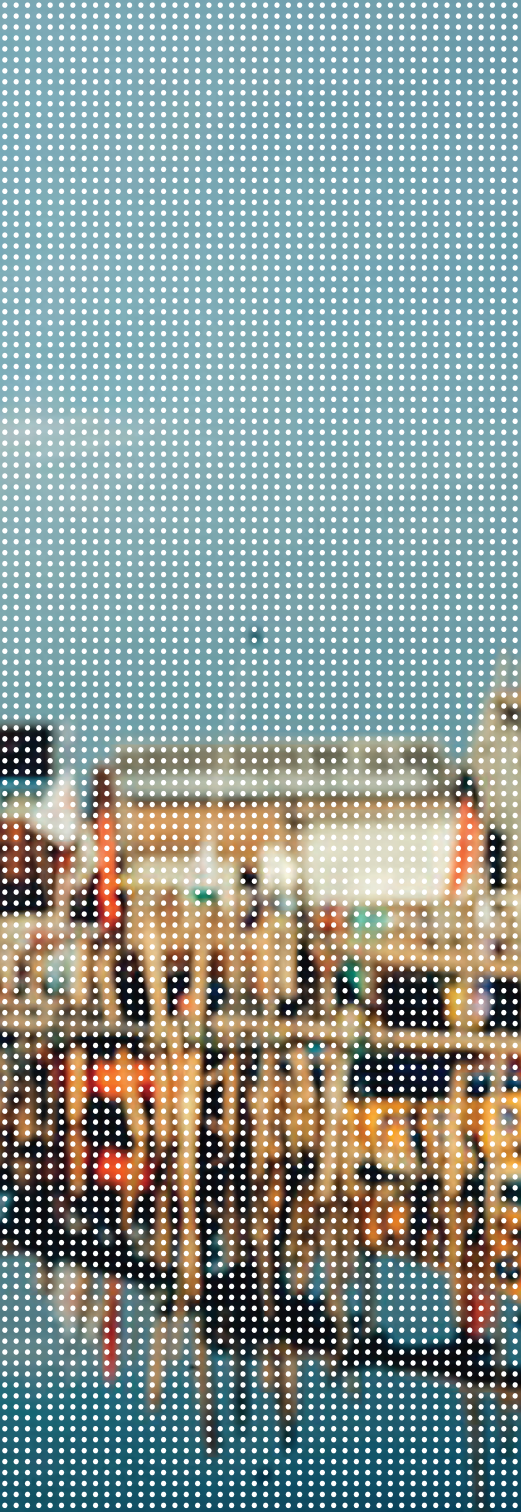

APPENDIX

SUMMARY OF SEMARANG RESILIENCE INITIATIVES

1st Pillar. Sustainable Water and Energy						
Strategy A. Increasing the perfomance of basic water management						
No	CODE	Initiative	Proposed initiative owner	Status	Type	Time Period
1	A1	Improve Monitoring and Imposing Better Sanction for River Pollution	- Semarang Environmental Office - Semarang Department of Water, Energy and Mineral Resources	Advancing	Key Initiative	Short Term
2	A2	Watershed, Water Reservoir and Basic Water Source Conservation	- Semarang Environmental Office - Agricultural Department	Advancing	Key Initiative	
3	A3	Advocacy and Partnership with the provincial government and surrounding regions	Semarang Water, Energy and Mineral Resources Office	Advancing	Support Initiative	

Strategy B. Promoting innovation on water provision						
4	B1	Extend the Utilization of Rain Water	- Semarang Environmental Office - Semarang Water, Energy and Mineral Resources Office - Semarang City Planning and Housing	Advancing	Key Initiative	Short Term
5	B2	Optimize Surface Water Utilization	PDAM (state-owned water company) Tirta Moedal	Ongoing	Key Initiative	Medium Term
6	B3	Promote Grey Water Recycle Technology	- Semarang Environmental Office - Semarang Water, Energy and Mineral Resources Office - Semarang PDAM - Semarang City Planning and Housing Office - private water companies - housing developers - industrial estates/ companies - commercial companies - community groups	Advancing	Support Initiative	

7	B4	Explore the Possibility of Sea Water Desalination	- Semarang Water, Energy and Mineral Resources Office - Semarang PDAM - private water companies	Inventing	Support Initiative	
Strategy C. Promoting environmentally friendly behavior						
8	C1	Campaign for Public Awareness to Save Energy and Water	- The municipal government - private companies (industry and commercial) - NGOs - universities	Advancing	Key Initiative	Short Term
9	C2	Scale Up of Waste To Energy Use	- Semarang Sanitation and Landscaping Office - Semarang Environmental Office - private energy companies - NGOs - universities	Advancing	Key Initiative	Medium Term
2nd Pillar. New Economic Opportunities						
Strategy A. Promoting enterpreneurship to increase the competitiveness of trade and services						
10	A1	Enhance the Capacity of SME and Creative Economy	- Semarang Cooperative and SMEs Office - private companies - Chamber of Commerce and Industry	Advancing	Key Initiative	Medium Term

11	A2	Development of Information Center for Products and Trade	- Semarang Cooperative and SMEs Office - Forum for Economic Development and Employment Promotion (FEDEP) - private companies - Chamber of Commerce and Industry	Advancing	Support Initiative	
12	A3	Promote E-Commerce and E-Business	- Semarang Cooperative and SMEs Office - Forum for Economic Development and Employment Promotion (FEDEP) - Chamber of Commerce and Industry - financial institutions	Inventing	Support Initiative	
13	A4	Expand Social Security Coverage to workers in SMEs	Manpower and Transmigration Office	Advancing	Support Initiative	
14	A5	Provide Capacity Development for the Informal Sector	- Semarang Cooperative and SMEs Office - Semarang Office of Market - private companies - financial institutions	Advancing	Support Initiative	Short Term

15	A6	Rebrand Traditional Markets	Semarang Office of Market	Advancing	Support Initiative	
Strategy B. Developing enviromentally-friendly and socially oriented innovative businesses						
16	B1	Promote Urban Farming	- Semarang Agricultural Office - agriculture companies - food companies - universities - NGOs	Inventing	Key Initiative	Medium Term
17	B2	Promote Ecotourism and Edutourism Activity	- Semarang Tourism and Culture Office - tourism companies - NGOs	Advancing	Key Initiative	Medium Term
18	B3	Improve Performances of Waste Bank And Upcycling	- Semarang Environmental Office - NGOs - Universities	Advancing	Support Initiative	
Strategy C. Strengthening multi stakeholder (Academic- Business- Community- Government) partnership to create job opportunities						
19	C1	Strengthen the ABCG (Academic-Business-Community-Government) Coordination for Creating Job	- Semarang Development Planning Agency - Forum for Economic Development and Employment Promotion (FEDEP), - Private companies	Advancing	Key Initiative	Short Term

3rd Pillar. Preparedness for Disaster and Disease Outbreaks						
Strategy A. Developing Technology for disaster and disease management						
20	A1	Raise Public Awareness in Areas Prone to Disasters	- Semarang Disaster Mitigation Agency - Semarang City Planning and Housing Office - Digital Globe	Advancing	Key Initiative	Short Term
21	A2	Explore Alternative Methods to Prevent Dengue Fever	- Health Office	Advancing	Support Initiative	Short Term
22	A3	Explore New Technology in Disaster Management	- Semarang Disaster Mitigation Agency - Water, Mineral and Energy Resources Management Office - Semarang Development Planning Agency - Private sector - Universities - Environment Office	Advancing	Support Initiative	

Strategy B. Enhancing the capacity of stakeholder in disaster and disease management						
23	B1	Replicate Disaster Preparedness Groups in Disaster-Prone Areas	Semarang Disaster Mitigation Agency	Advancing	Key Initiative	Advancing
24	B2	Improve Community-Based Sanitation System	Sanitary and Landscaping Office	Advancing	Key Initiative	Medium Term
25	B3	Increase the Capacity of Stakeholders in Facing Disasters and Disease Outbreaks	- Semarang Disaster Mitigation Agency - Health Office - universities - NGOs	Advancing	Support Initiative	
Strategy C. Improving coordination in disaster risk reduction						
26	C1	Prepare Participatory Contingency Plan	- Semarang Disaster Mitigation Agency	Inventing	Key Initiative	Long Term

4th Pillar. Integrated Mobility						
Strategy A. Encouraging a chance in behavior from using private vehicles to public transport						
27	A1	Optimize Intermodal Transport	Transportation, Communication and Informatics Office	Advancing	Key Initiative	Short Term
28	A2	Expand the Coverage of BRT Corridors and Feeder Service	Transportation, Communication and Informatics Office	Ongoing	Key Initiative	Short Term
29	A3	Explore the Possibility of MRT Development and Its Alternatives	- Transportation, Communication and Informatics Office - private sector	Advancing	Support Initiative	
30	A4	Introduce BRT-Integrated School Bus Service	- Transportation, Communication and Informatics Office - Semarang Education Office - Save The Children (Colaboration with Future Cities Laboratory-ETH Singapore Centre)	Inventing	Support Initiative	

31	A5	Improve Public Transportation Facility to be More Disabled People- and Environmentally-Friendly	- Transportation, Communication and Informatics Office - GES	Advancing	Support Initiative	
32	A6	Improve Pedestrian and Bicycle Paths	- Toll Road Regulatory Agency and Transportation - Communication and Informatics Office	Advancing	Support Initiative	
Strategy B. Improving coordination and institutional quality management of public transportation						
33	B1	Strengthen Institutional Management of Public Transportation	Transportation, Communication and Informatics Office	Ongoing	Key Initiative	Short Term
34	B2	Establish a Public Transport Consortium	Transportation, Communication and Informatics Office	Inventing	Key Initiative	Medium Term
35	B3	Establish Kedungsepur Coordination Forum	- Transportation, Communication and Informatics Office - Semarang Development Planning Agency - Central Java Development Planning Agency	Inventing	Support Initiative	

Strategy C. Improving integration in transport planning						
36	C1	Intensifying Development in the Plannned Growth Centers	- Semarang Development Planning Agency - Semarang Planning and Housing Office - Digital Globe	Advancing	Key Initiative	Long Term
37	C2	Promote the Regional Transportation Master Plan	- Transportation, Communication and Informatics Office - Ministry of Transportation - IGES - Digital Globe	Advancing	Support Initiative	Short Term
38	C3	Improve Public Transport Access to Tourism Attractions	Transportation, Communication and Informatics Office	Inventing	Support Initiative	Short Term
39	C4	Improve Accessibility to Newly Developed Areas	- Semarang Development Planning Agency and Transportation - Communication and Informatics Office - Digital Globe	Advancing	Support Initiative	

5th Pillar. Transparent of Public Information and Governance						
Strategy A. Optimizing musrenbang (development planning forum) in the planning process						
40	A1	Improve Mechanism for Pre-Musrenbang	- Semarang Development Planning Agency	Advancing	Key Initiative	Medium Term
41	A2	Increase Accessibility to E-Musrenbang	Semarang Development Planning Agency	Advancing	Support Initiative	
Strategy B. Improving the intergration of planning and city budgeting						
42	B1	Improve the Capacity of City Planning and Budgeting Personnel	Regional Finance Agency	Advancing	Key Initiative	
43	B2	Integrate Planning and City Budgeting	Semarang Development Planning Agency	Advancing	Key Initiative	Short Term
44	B3	Improve the Documentation and Publication of City Program	- Semarang Development Planning Agency - City Public Relation Division	Advancing	Support Initiative	Medium Term

45	B4	Improve Budget Administration, Monitoring and Evaluation	Semarang Development Planning Agency	Advancing	Support Initiative	
Strategy C. Optimizing the goverment's coordination of data integration and public information						
46	C1	Increase the Quality and Capacity of City Information System	- Semarang Information and Documentation Managing Officers (PPID) - Universities	Advancing	Key Initiative	Short Term
47	C2	Enhance the Performance and Utilization of Internet-Based Participatory Reporting	- City Public Relation Division - Electronic Data Management Divison	Advancing	Support Initiative	
48	C3	Improve Public Information on City Permit Process	- Semarang Permit and Capital Investment Agency - Digital Globe	Advancing	Support Initiative	Medium Term

6th Pillar. Competitive Human Resource						
Strategy A. Preparing the workforces for the current job market						
49	A1	Establish Career Centers	Semarang Manpower and Transmigration Office	Inventing	Key Initiative	Short Term
50	A2	Align Education and Training with Labor Demand	- Semarang Education Office - Semarang Manpower and Transmigration Office - Save The Children	Inventing	Support Initiative	Short Term
51	A3	Provide Vocational Training for Elementary and Junior High School Graduates	- Semarang Manpower and Transmigration Office - Community - Women Empowerment and Family Planning Agency - Save The Children	Advancing	Support Initiative	
Strategy B. Promoting the value of pursuing higher education qualifications						
52	B1	Increase Access to Scholarships	- Semarang Education Office	Advancing	Support Initiative	

Strategy C. Improving non-formal education						
53	C1	Promote continuous education service for people of all ages	Semarang Education Office	Advancing	Key Initiative	Medium Term

Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

We believe in building our capacity to better strengthen our city resilience.